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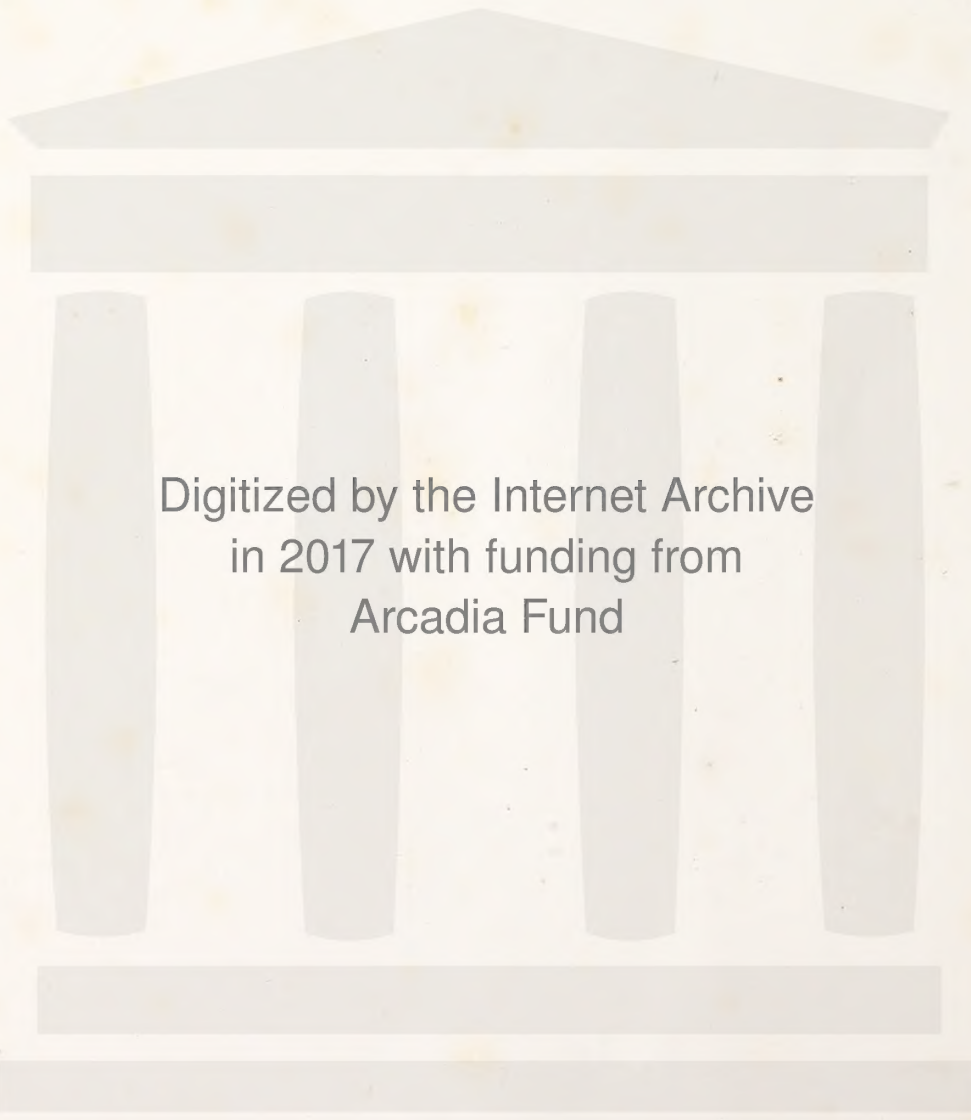


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Dissertation

"Duties of the Physician"

with
"Valedictory Remarks"

by

Ludson B. Andrews-

A. candidate for the degree of

"Doctor of Medicine"

Gale Medical School Jan 13/1863.

Duty of the Physician.

Duty is the circle by which human life is bounded. It is not an absolute immovable limit, but a relative, ever increasing one, growing with man's growth, widening and expanding with his multiplied relations with his fellow men. It is a boundary we seldom pass. Conscience, the faithful guide urges us to action in the path of Duty; but Selfishness draws us back to the center, to ourselves. Thus it is man becomes the unsteady, fickle being we often find him, vacillating between the center of self and the boundary circle of duty. Such an one does not truly live. Man's existence has a higher [&] nobler end than that which points to self. A life of action in the performance of duty is the only one worth living.

We have a debt we owe to others and that not merely to those with whom we are intimately associated, but to the world at large. This debt of Duty (as we may call it) is proportioned to mans acquirements, to his positions, to his relations with mankind.

No one is taxed more heavily than the Physician. To expand ~~this~~ idea will be our object, and for convenience we will divide the subject into the three parts: the Duty of the Physician to himself, to his patient, and to the community.

And firstly: It is the duty of the Physician to qualify himself for the work of his Profession. To attain this end, Prof Meigs gives this as the best advice he can offer: "In all your life doing strive first to increase the boundary of your knowledge." To this should all your efforts be directed not

merely during your student life, but
throughout your whole professional career.
No Profession requires a more compre-
hensive ^{mind} than that of Medicine.

To excel in it demands a greater
compass of learning than is neces-
sary in any other. A knowledge
of the Sciences of Anatomy, Botany
and Chemistry lie at the foundation.
Upon this base the superstructure of
Medical Science is to be erected.

But we do not stop here, we call upon
all Sciences and departments of knowl-
edge to contribute their part toward
the completion of this at once the
most necessary and beneficial of ^{them} all.

A knowledge of Languages
of Mathematics, of Natural History, of
Natural Philosophy, of Law, and
the possession of some degree of
Mechanical skill, together with a
good share of what the world

familiarly calls common sense
an necessary qualification of one who
would occupy a high position in
this Profession. The Physicians knowl-
edge must not only be thus compre-
hensive, but of a thorough, practical,
kind. It is not enough that
he knows the names of Bones & muscles,
of the blood vessels and nerves in the
human system; he must under-
stand them in all their relations
and in their different stages of
growth and decay, both in health
and disease.

Again: it is the
Duty of the Physician, so far as
his time and ability will permit,
to explore the secrets of Medical
Science; to put questions to nature
and record her replies. She
speaks intelligently and by
following her indications: none

need err. The students of to day
have opportunities of research never
enjoyed by their fathers. Intelligent
legislation and an enlightened
public opinion have removed
many barriers to the cause of invest-
igation; so ^{that} the Medical student
is no longer looked upon as a
grave-yard robber or in league
with sextons and resurrectionists.

The Microscope has been added
to our means of observation and
is destined to work as great a
revolution in the study of Anatomy,
as the Telescope has done in the
study of Astronomy. Says Holmes
in speaking of this subject

"We are poised between two material
infinities, the infinity great and
the infinity little, and while the
former has been thoroughly explored
we have but reached the inner

border of the second" The Microscope is to unlock the arcana of little things in Nature; and may yet lay open to us the secret of existence. But while it is the duty of the Physician to devote himself to study, thereby expanding the mind and storing it with professional knowledge - he is also to cultivate the heart and improve the manner. Thus will he be fitted for the duties he owes his Patient

In the performance of these duties lies his greatest labor, a labor demanding an assemblage of virtues and accomplishments, the possession of which is worthy the efforts of the highest genius and the noblest mind.

Among these we name first "Truthfulness". Lying is the great temptation to which Physicians

are exposed, and to which
through a misconceived idea of
benevolence, they too often yield.
Many apologists are found for
this course. In a recent work
entitled "Currents & Counter Currents"
the author devotes several pages
to prove the duty of a Physician
under some circumstances, to tell
a falsehood to his patient, viz
arguments in a nutshell and
as he states it is, "A Physician's
first duty is to his patient, his
second to himself." Now while we
are willing to acknowledge that
the Physician should do all in his
power to benefit his patient, even
to the sacrifice of his own comfort
and interest and it may be
even of his own life, we deny that
he is called upon to barter all the
good there is in rectitude of conduct
and ~~and~~

to the uncertain chance of saving
a life already despaired of.

Cases are multiplied to prove
that a falsehood told the Patient in
regard to the probability of his
recovery, has saved his life; but
these are of no value, numberless
though they be; to prove the right
to deceive, unless it can also be
proven that the truth would have
destroyed the life in question -

Thus much to those who would
include Lying among the duties
of the Physician. I will state a few
reasons why he should be truthful
It is impossible to fix upon any
definite limits to the practice of
Deception. The occasional use
of it soon grows into a habit.
And he who once adopts it may
by a mistaken judgment of the
necessity of the expedient apply

the same remedy in other & trivial cases. In this way the Practitioner is led to follow a system of Deception with the same regularity that the unthinking, narrow minded Physician follows his routine of Practice. Again: there is not a more important element of success than perfect confidence of the patient in the truthfulness of his Medical Adviser. The only way to gain and retain this confidence is to act and speak with candor to the sick. Nothing should be permitted which can in the least impair this feeling, for in it lies a great and powerful influence, often more potent than the most carefully written prescriptions. A deceptive look, a word, a gesture when detected, gives rise to a suspicion in the mind of the patient which

exerts a more hurtful influence than the full statement of the truth when communicated in a proper and cautious manner.

And concealment here is more difficult than you would at first imagine. There are a thousand ways in which the truth may appear.

Your tone, your manners - the actions of attendants - the arrangements of the sick room - the secret conversation overheard - the incautious word, uttered perhaps by the prattling child - the convictions of the patient himself - all tend to thwart your plan - and when the truth breaks upon the mind of the sick, who can tell the depth of despair which overwhelms the soul, his worst fears^{are} realized and to a state of hope succeeds a blank despair - It were better to tell the truth, the whole truth

than thus to torture the feelings and
abuse the confidence of the helpless.
Let us not commit so great a sin.
May we be truthful to our patients and
just to ourselves.

The Physician
should be a humane man.
The feeling of sympathy should
abound in his nature, not that
sympathy which consists of an
~~ostentatious display~~ exhibition of feel-
ing, giving utterance to sobs and
groans - to wordy protestations and
the flow of tears, likening the sick
room to an Egyptian Tomb and
the attendants to mourners at a
funeral - This would subvert the
very end for which the Physician
is called - No, he wants no such
humanity as this - but a sympathy
which will provoke to action and
arouse to efforts to relieve suffering

and restore health. His feelings may be strong, but these he must control, and this is the secret of his ability to behold scenes of sorrow and distress which unman and enervate those who are unaccustomed to them. His whole life is spent by the bed-side of the sick and dying.

Death is a frequent visitor, the great enemy with which he must contend and here when life hangs upon the decision of the moment, would you have the Physician hesitate to employ the lancet or the Knife, because forsooth he may inflict temporary pain or cause you to shudder at the sight of blood? Would you have him sit down and join his lamentations with those of the weeping friends and thus allow death to claim his victim? Would you have the Doctor show his sympathy for you by such a course?

Complain no longer that Physicians are hard hearted and unfeeling because they perform operations necessary to save life and remove disease with a steady hand and a clear eye - This is the highest proof of their humanity - a humanity shown by that sensibility of heart which makes us feel for the distresses of our fellow men and which of consequence incites us in the most powerful manner to relieve them. Such sympathy naturally engages the affections and confidence of a patient, which is of the utmost importance to his recovery.

The Physician should be a benevolent man.

Charity is the eminent virtue of the Medical Profession - Says the celebrated Sam. Johnson - "I believe every man has formed in Physicians

great liberality and dignity of
sentiment, very prompt effusion
of beneficence and willingness to
exert a lucrative art, where there is
no hope of lucre." Listen to the words
of a recent author. "Show me the
garret or the cellar which its messengers
~~do~~ not penetrate, tell me of the pest-
ilence which its heroes have not
braved in their errands of mercy;
name to me the young practitioner
who is not ready to be the servant of
servants in the cause of humanity,
or the old one whose counsel is not
ready for him in his perplexities and
I will expatiate upon the claims
of a virtue which I am content to
leave you to learn from those who
have gone before you and whose
footprints you will find in the
path to every haunt of stricken
humanity."



Neither will I enlarge upon this
duty. It is one ~~the~~ Profession has
fully learned and cheerfully practice
It is a virtue replete with blessings
It blesses him that giveth and
him that receiveth

A Physician by the
nature of his profession has many
opportunities of knowing the private
character and concerns of the families
in which he is employed. He is
admitted at all times and without
formality to the family circle. A
confidence is reposed which even the
most intimate friend fails to gain
This gives rise to the sacred obligation
of secrecy and honor. No high
minded or even well bred man can
be recreant to such a trust. yet there
are those in our profession who
habitually violate this sacred law
and amuse themselves by recount-
ing

the knowledge acquired by the opportunities of their position. Too soon a sentence cannot be passed upon such meanings. Let those who practice this vice be held up to the scorn and contempt of all right thinking persons. Let the anathemas of society be uttered against those who prostitute the garb of the Medical Profession to such despicable acts. In keeping inviolate the secrets of others, the greatest discretion and most delicate sense of honor are demanded. A well earned reputation for the practice of this virtue is one of the surest passports of success in life. Its importance challenges your attention and renders it worthy your efforts to gain.

The Physician should be punctual in answering his



professional calls. The want of punctuality in a practitioner is a fault which no amount of practice can excuse. The busiest people are always the most punctual. Do not answer a messenger, "I'll be there directly," when you know another patient in a distant locality is anxiously awaiting your arrival. Disappointment must ensue. You injure your own reputation, while hours of tedious waiting may induce a state of fretfulness in your patient, which may aggravate his disease beyond the reach of your remedies. If such a practitioner does not ~~lose~~ cast in his Profession and practice in the community, it is a wonder that cannot be accounted for. We have thus cursorily mentioned the more important duties which the Physician

owes his patient. A mere enumeration of some few others will conclude the second part of our subject.

It is incumbent on the Physician to learn nothing undone which may aid or comfort the sick. There are many things which tend to this end which will suggest themselves to every thinking mind.

He should govern his patient rather by his personal influence than by harsh or exacting commands. He should make no distinction on account of wealth or rank. ^{riches is no} Fickling to, contemptible an art for any man to practice who makes pretensions to decency or to public regard. The Physician should pay attention to his manners, he should be the Gentleman the dignity of his profession demands. In short, he should ^{he act} the man

and support the rightful claims of his position he will not fail to benefit the sick and please the well.

The relation of the Physician to the community is an interesting and important one and one which brings with it great responsibilities. His learning and position enable him to exert an influence for good or for evil not easily estimated. During the period of his career he is brought in contact with all persons and classes of society. None so high or so low, none so virtuous or so vicious as not at some time to need the kind offices of a Physician. A whole generation may be born, live, and die while under his watchful care. In this way the life of the Physician is inwrought into that of the com-

munity in which he practices. How
may prove a blessing to it by the
example of a virtuous, Christian
life or leave behind him a mem-
ory doubly accursed by the positive
harm he has done and neglect
to do the good which lay in his
power-

The Physician should be
the friend and supporter of Morality
and Religion. This we might
expect from the influence of his
pursuit. The very diseases he treats
are many of them penalties of the
violation of Gods moral law. When
ever he goes abroad in Society, he
beholds scenes of sorrow and dis-
tress in which he can but recognize
the hand of God visiting with pun-
ishment the sins of fathers upon
the third and fourth generations
His life is a continued school-

time and no lesson is taught more plainly or forcibly than that of Morality. In his relation with Society he becomes the teacher, for it is his duty not only to cure disease but to instruct the people in the means to avoid it, and surely he will not now fail to teach the lesson he has so long and constantly learned. By precept and example, in public and in private, he should be the uncompromising enemy of immorality in whatever form he may trace its hideous features. Be it under the glittering robe of fashion or the unsightly cloak of ignorance and vice, he should stamp it with its true name and with the mark of his own disapproval. Then is he true to duty, a safe and faithful teacher.

There are strong reasons why the Physician should be a religious

man. or at least should give
Religion his support and influ-
ence. He has to care for the human
body. the most wonderful piece of
mechanism which has issued from
the hand of Divinity. Who indeed
can survey the external and internal
structure of the human system, the nice
arrangement of bones, the adaptation
of every part to perform its appro-
priate function. the curious and
admirable mechanism of the eye
the ear, the heart. - the mysterious
circulation of the vital fluid - the
lungs, the nerves, the muscles, and
all the innumerable wonders of the
animal economy and not be
deeply impressed with the wisdom
and goodness of the Almighty
Creator? It is said that Galen
one of the fathers of Medicine was
converted from ~~Atheism~~ by the

contemplation of the human frame
If he at that distant time, when
surrounded by all the influences of
heathen down looked Nations rose
to Nature's God, how much more should
the Physician of to day situated
amid the civilizing influences of
an enlightened, living, Christianity
learn to love and obey the Author
of his being and his blessings

But if all these means fail to
make him the personal possessor
of Religion. he cannot fail to ap-
preciate its power for good and
his own duty to the community
in regard to its support. Other
men may see its influence on
society in the churches it has
erected. in ^{the} benevolent institutions
it has given birth to, in its ability
to overcome evil advance Morality
and improve the condition of man.

kind, but the Physician can see its influence over the individual man, in the support it gives in the last trying hour, and in the peace it affords when disease triumphs over Nature and Death claims the victory. The Physician then as an enlightened educated man, must perceive the good Religion has accomplished. As a humane sympathizing man must acknowledge the benefit to the individual and as a moral responsible being must support the cause—

Thus briefly have I treated of the duties peculiar to our Profession. Hoping the truth so feebly spoken may arrest your attention. I leave the subject for your consideration—

² Valedictory Remarks.

Another task and we are done.
We are now on the dividing line
between the buried past and the
untorn future. It is a time pro-
naut with thought. The mind recalls
with pleasure its existence in the world
of reality and of deeds already done,
but looks with trembling solicitude
to the life beyond when fact gives
way to fancy and deeds performed
to the hope of doing. We have lived
this former life and now we enter
the portals of the second and bolder
eager, yet hesitating to speak the
word which severs the bond that
has here united us. I should be
recrude to my duty and to the better
feelings of my nature did I fail to
remember with gratitude you our
honored Instructors. A few short months
ago we first assembled here

to receive the benefit of your instruction. We supposed that long lives spent in the practice, and minds devoted to the science of Medicine, combined with great experience in teaching, would eminently qualify you as Instructors. Nor have we been deceived in our judgment. The interest you have manifested in our progress, the efforts made to advance us in our studies, the endeavors to inculcate correct principles, and point out the most approved modes of practice, the kindness you have shown in your intercourse with us, all will be remembered and will serve to strengthen the kindly feelings which always exist between the faithful teacher and the grateful pupil. To you Sir we accord the praise of having consecrated.

yourself to the work of educating
mind and what higher praise
can be rendered to mortals than
that due the true teacher. The blessings
you have conferred, will return to
bless you by the consciousness
of beneficence and that gratifi-
cation you may feel in after
years of having contributed to
the success and usefulness of those
who have been under your instruc-
tion. Long may you enjoy the
proud satisfaction of seeing the
truth you have inculcated yielding
a rich harvest of noble thoughts
and generous deeds, and may
many a band of youth come
before you as we now do to utter
their benedictions as from grate-
ful hearts they bid you Farewell

My Classmates—

The Period to which
we looked forward with so much
of interest and anxiety has arrived.
Our life as students of this Institu-
tion is closed— Our association
together has been as pleasant as
it has been brief so that to day
we have no jealousies to forget,
nor animosities to bury before
we can separate as friends. A
unity of purpose has become
a unity of feeling. As a class
we leave behind us a reputation
for studiousness and correct
deportment as the best and only
legacy we can bequeath to
our successors. But while we
entertain a just pride in view
of ^{our} past course— may this success
be but the harbinger of a bright
and useful future—

With the honors and privileges conferred by our degree, the immediate guardianship of our Alma Mater ceases. No longer can we rely for counsel and advice upon those who have so kindly led us on in our pupilage. We go forth each to think and act for himself. We are to assume responsibilities from which no one can relieve us. Self reliance and a thorough knowledge of our duties must constitute our strength. To develop these elements of power will require long years of bitter experience and diligent study - and during this time we are to toil on never ceasing ever waiting. A life of constant vigorous effort is then to be our lot. which though difficult and often gloomy - will not be entirely devoid of pleasures

The triumphs of his Art afford
to the Physicians enjoyments
as pure as the Happiness it confers
on others. But we will no longer
anticipate the realities which await
us. But as soldiers armed for
action and determined on victory
let us go forward to meet them
Thus prepared and in such a
spirit you need not look for
failure - a perfect and final
success will be yours.

Fannell

Dysentery or Colitis.

The essential feature of this disease, is an inflammation of the mucous membrane, of the large intestines; but it does not always extend over the whole length of that long surface, being confined in simple forms of dysentery to the rectum.

For convenience of description, and treatment, I shall divide it into three grades or varieties; the acute, the sub-acute, and chronic. The acute form of dysentery is commonly ushered in with fever, there being more or less lassitude, loss of appetite, accompanied with pain in the abdomen, which is of a dull or transient character. We also have costiveness, and diarrhea, together with other signs of irritation of the intestines. The local symptoms, in mild cases of dysentery may however make their appearance without any

premonitory symptoms of a febrile character, and the disease may thus run its course, the febrile symptoms in such cases being entirely absent. The patient may be attacked with symptoms of fever, at the same time that he experiences pain and tenesmus. The fever often runs for a considerable length of time without any manifestations of disease of the bowels, though this does not often happen I believe, unless it is associated with some other disease of a febrile character.

The symptoms of this form of dysentery are, a severe gripping pain, a desire to frequently go to stool, at the same time there is distressing tenesmus; the tenesmus is much greater when the inflammation is confined to the rectum.

These symptoms all occur usually, within a few hours after the first

indications of the disease.

But with all this tormina, and tenesmus, nothing is evacuated but mucous, or mucous mixed with blood; unless the bowels are previously loaded, when there will be feculent matter passed with the first two or three discharges, which will generally afford some temporary relief to the patient.

After this the discharges will be more or less bloody, the blood is sometimes discharged in alarming quantities. The patient during this time is constantly harassed, he is able to get no rest either by night, or by day; he desires to go to stool, and feels satisfied that he can there find relief by discharging something that is constantly irritating him, and causing him the most intense

away, but this he soon finds
gives him no relief. the griping
and tenderness, still continues
unmitigated. In this acute form
the urine is high colored, and
scanty, the bladder and ureters
sympathize with the rectum,
consequently the patient finds much
difficulty in passing it. In females
the vagina it is said, is sometimes
implicated in the same way.
There is commonly tenderness of
the abdomen on pressure, and
the extent of the inflammation
can usually be determined, by
ascertaining in what locality the
tenderness exists. In this stage of
the disease, except in mild cases
the pulse is accelerated, being full,
and strong, the skin is warm,
and dry, the tongue moist, and
covered with a whitish fur;

the secretion of bile is commonly diminished. Sometimes in very severe cases, the patient - sinks from the impression made on the nervous system. The patient in such cases complains of a hollow, sinking feeling in the abdomen, the skin is cold and damp, the pulse feeble, and we have nausea, and vomiting.

Most commonly we see manifest signs of improvement - between the sixth and tenth day, and the patient - recovers.

Sometimes however, the disease is so severe that the symptoms of depression appear from the beginning, and the nervous system is unable to react, from the great severity of the disease.

In such cases the patient - has a feeble, quick pulse, a pale, cool and clammy skin, which comes

on slowly, in the most-fatal cases;
an anxious countenance, and a
purplish tinge under the eyes, about
the lips, and at the roots of the
nails; at the same time the local
symptoms are aggravated.

These cases commonly terminate
fatally. This severe form of the
disease, seldom appears, excepting
as an epidemic. If the case is
about to end favorably, we see
signs of improvement as soon
as the seventh or tenth day;
but should the severity of the
symptoms not abate by that time,
they are soon apt to be aggravated;
the febrile symptoms, together with
all the peculiar symptoms of dys-
entery are alarmingly increased,
and it becomes evident to the
intelligent-medical attendants,
that death is rapidly approaching.

If this severe form of the disease is not checked, during the early part of its course, there is great danger of disorganization of some of the internal, abdominal organs, from the effects of inflammation.

The liver is liable to suppurate; abscesses may form in it, which can usually be determined by the rigors, and chills which alternate with the febrile symptoms. When the liver is thus affected, it is probably owing to the influence of heat, which impairs its functions; this of course most commonly occurs in tropical climates. When the patient experiences sudden relief, and the pulse flag, becoming weak and irregular, the countenance sinks, and the extremities and forehead are covered with a cold, clammy



sweat; we may suspect mortification. This disease may result in ulceration of the intestines; when this is the case, the more violent symptoms may subside, but the symptoms of dysentery sometimes continue in a chronic form, which, are very difficult to treat.

The sub-acute variety of dysentery differs from the acute, in that the symptoms are not as marked, and severe. The febrile symptoms are sometimes so mild as to pass entirely unnoticed, though there are always found some symptoms of this kind if the patient is closely examined. The circulation will be disturbed, and the functions of the skin will be found to be impaired. Towards evening there will be a feverish state of the system, and the local symptoms

will be aggravated. The stools in this form of dysentery will not be as frequent as in the acute form, nor the discharges of blood as profuse; the griping and tenesmus is not as severe, and there is very little, if any tenderness of the abdomen or proctum. The natural feces are retained in both of these forms of dysentery, excepting when purgatives are exhibited, when they are brought away mixed with blood and mucus. Chronic dysentery is commonly a sequel of acute, or sub-acute dysentery,

but it frequently appears spontaneously, without any of the acute symptoms preceding it, from derangement of the functions of the liver. In this form of the disease the contents of the bowels are more readily passed, than in

the other varieties, it being discharged in a liquid state, or accompanied with mucus; but they do not possess the odor of healthy feces; the stools are always preceded by an uneasy sensation, and a rumbling noise in the bowels, they are passed with some gripping pain, and followed by tenesmus.

After this the patient is usually at rest for a time, and is not troubled with any of the uneasy sensations until the next evacuation. There is with these symptoms an unhealthy aspect of the countenance, the appetite may be good, but the digestion is very imperfect, which is evinced by all the signs of disordered digestion; undigested food will be passed from the bowels. If the liver is deranged, it can easily be detected by the appearance of the stools, and urine; the bile being absent in the excrement, and present in the urine.

If there is ulceration or organic change in any part of the intestines, or the liver is in any way affected, the griping, pain and tenesmus will be greatly aggravated. We commonly find these very obstinate cases, sometimes defying all means of treatment.

Dysentery is very frequently associated with other diseases, it being prevalent in malarious districts, consequently it often accompanies intermittent, and remittent-fever. It is also frequently complicated with typhoid fever, and is then a very bad symptom. We often find it associated with, gastritis, enteritis, and enteric fever.

Prognosis.

When dysentery is about to terminate favorably, the pains do not occur as frequent, and they are less severe, the tenesmus abates, the discharges are more abundant and less frequent;

but they may at this time, be fecal
and bilious, and the disease may thus
terminate in a mild form of diarrhea.
But when the vomiting and tenesmus
suddenly subside, and tympanitis,
coldness of the extremities, a cool clammy
skin, feeble, frequent, and irregular
pulse, involuntary discharges, delirium
and stupor supervene, we may expect a
fatal termination. Death may take place
from exhaustion, gangrene, and from
the recurring effect of the inflamma-
tion, and the discharges. The longer
the disease continues without cess-
ment, of course the greater the danger.
If we find much tenderness on pressure
along a considerable portion of the track
of the intestine, combined with other bad
symptoms, our prognosis is unfavorable.
Ordinarily, dysentery of a sporadic type
occurring in temperate climates, does not
prove a fatal disease; but when

prevailing as an epidemic, in unhealthy miasmatic districts, in hot-climates, in armies, and in crowded and uncleanly parts of large cities it is a disease much to be feared.

Pathological Anatomy.

In cases of death from dysentery, the rectum and lower portion of the colon always presents signs of inflammation. Sometimes the inflammation is diffused over the whole of the mucous membrane equally; it may be seated in the glands, and mucous follicles. The membrane is often found reddened, thickened, and ulcerated. Congealable lymph is frequently ^{found} covering the membrane. Sometimes the inflammation extends beyond the mucous membrane of the intestine, involving the whole of the parietes of the bowel but the peritoneal coat; it is said that perforation of that coat is exceedingly rare in dysentery;

The inflammation sometimes extends through the whole length of the colon, and into the small intestines.

Dysentery occurring in tropical climates, is very apt to affect the liver.

Causes.

The predisposing cause of dysentery is heat long continued; it increases the excitability of the mucous membrane, of the alimentary canal, and disorders the functions of the liver, and by relaxing the surface of the body, renders it peculiarly susceptible to the influence of cold; which together with moisture is one of the most common exciting causes; it is probably owing to this cause, that dysentery is so prevalent a disease among armies. Irritating substances in the bowels, often act as exciting causes; such as unripe fruit, or ripe fruit in large quantities, eaten irregularly, unwholesome, and indigestible food, imperfectly

fermented ale & beer drinks putrid water,
worms, and feculent accumulations in
the bowels, putrefying animal sub-
-stances, and decaying vegetable matter all
act as exciting causes. Dysentery appears
frequently as an epidemic, particularly
in malarial districts, accompanying
intermittent, and remittent fever, and
typhus fever. It is the prevailing opinion
among the profession at the present time
that dysentery is not contagious, that
is, in its ordinary form, but as there
has been much dispute on that point,
I shall not attempt to argue it pro, or con,
but leave it to those whose delight is
it is, to speculate and theorize.

Dysentery attacks persons of all ages,
sex, and classes; those who are most
exposed, being the most liable to suf-
-fer from it; it is much more pre-
-valent in summer and autumn, than
in winter or spring.

Treatment.

We must vary the treatment of dysentery according to the circumstances of the case which we have in hand.

We must regard the previous arrangements of the patient, and also the manner in which the disease has made its attack. We should arrive as near as we can at the character of the disease, considering whether it be epidemic or not. If diarrhea has preceded the attack of dysentery, we should generally at the outset give a cathartic; calomel will usually prove the best cathartic in such cases, particularly if we have symptoms of bilious derangement.

Sporadic dysentery can often be destroyed by administering full doses of calomel in the first stages of the disease. The objects which we should have in view in the exhibition of cathartics are, to remove all irritating substances from

the bowels, and to change the state of the secretions. The character of the cathartics should here be taken into account.

Drastic purges can never be used with impunity, they only add to the disease by irritating the already inflamed surface; laxatives, and the milder purgatives should be used instead. We should commonly evacuate the bowels well at first, then one may follow this with laxatives in small doses, if there are indications that they are needed, such as fecal matter in the intestines. We should however avoid teasing the bowels with repeated small doses of laxatives or purgatives. On ordinary cases, from fifteen to twenty grains of Calomel should be given at first, which should be followed in four or six hours with some laxative, such as Castor oil, or some of the neutral salts, as sulphate of magnesia, or sulphate of soda; there may be

used with much advantage when we have fever, with a hot and dry skin; they increase the secretions, and produce an alterative effect. If the strength fails, and the disease takes on a chronic form rhubarb, in some of its forms may be given, and usually with very good effect. Great benefit may be obtained by combining opium, with our cathar-tics, Opium is one of our most impor-tant remedies in the treatment of dys-entery; it relieves the patient from pain, produces sleep, and allays spas-modic action, thereby facilitating the action of other medicines. When opium is combined with ipecac, it directs the action to the surface of the body. The dose of opium must be varied accord-ingly to the condition of the patient, and the amount of pain present. we should aim to keep the patient under its influence; if the disease is

action, and the pain is severe. Opium may be given with benefit in the form of an enema, in the proportion of one teaspoonful of Laudanum, to two tablespoonfuls of starch. Diaphoretics are very useful remedies, they act - by directing the circulation to the surface, at the same time they have a repletory influence on the blood vessels, thus tending to allay inflammation. Small doses of tart^r emetic, or half a grain of ipecac, with a quarter or half a grain of opium given every two or three hours, will frequently have a very good effect. Spirits of nitre is a most excellent diaphoretic in dysentery. The warm bath may often be resorted to with benefit. Bleeding. The indications for bleeding are a full and strong pulse, pain, and tenderness of the abdomen, accompanied with a general febrile action; These symptoms being present -

in a person of a full plethoric habit, we would commonly bleed; usually one bleeding will be sufficient, but if the strong febrile symptoms continue unabated, we may repeat the bleeding. But if the disease has run on for a considerable length of time, and the patient in consequence is much reduced, we should not bleed.

Counter irritation is often employed with advantage, when we have over-
-crossed the force of the disease. Much relief will often be obtained by the application of warm fomentations to the abdomen. Leeches applied about the anus, are particularly useful in cases where we have severe tenesmus.

Acids are much used; the nitro muri-
-atic acid is often used in the adman-
-ced stages of dysentery.

Diet

In cases not attended with much fever,

some solid ~~food~~ farinaceous substance, such as boiled rice, cracker &c. may be given; but if we have much fever present, the diet should consist chiefly of mucilaginous drinks, gruels &c. We should however consult the patients' cravings, and longings, and endeavor to appease them so far as it is expedient with the patients' welfare. In the treatment of sub-acute and chronic dysentery, particular attention should be paid to the diet. Bleeding is seldom made use of. Cathartics are not often required; laxatives however are of much service, to prevent the accumulation of fecal matter in the intestines; for this purpose, castor oil, rhubarb, or some other equally mild laxative may be used. Opium should be given if we have pain; the Dover's powder given at bed time, will often act very favorably. Alterative



medicines are much used. A change
of air will often effect a cure, when all
other means have failed.

Albert-Gordon. Birmingham.

Peritonitis.

By

Henry Sylvester Cornwell

of

New-London,

Conn.,

Candidate for the Degree of Doctor of Medicine.

Peritonitis.

This is the term applied to an inflammatory affection of the serous membrane lining the Abdominal and pelvic cavities, and which invests, more or less completely, the several viscera contained therein. The great extent of the Peritoneum, the different functions of the Organs which it implicates, as well as the obscure, insidious, and dangerous character of some forms of the Affection, render it one of the most important studies to which the Student of Medicine can direct his attention. This disease may appear at any period of life, and may be either Acute, or Chronic. I shall confine myself, however, to a consideration of the Affection as it appears in the Adult, independently of the puerperal condition.

Symptoms and Course of Acute Peritonitis.

The Disease commences with pains of the abdomen, rigors, more or less local heat, and the general symptoms of febrile acroph. The pain may commence in any part of the abdomen, from thence gradually spreading over its entire surface, or it may be generally diffused from the beginning.

The pain is, in fact, the most prominent symptom. The patient suffers from whatever brings the abdominal muscles into action, and on this account voluntarily impedes the descent of the diaphragm in respiration. He dreads the touch of the physician, pressure, either by the hand, or the bed coverings being almost intolerable. The decubitus is consequently dorsal, with the legs flexed upon the body, both to elevate the bed clothes, and to allow the intestines to fall away from the inflamed area.

The pain is of an acute, pungent, and tensive character, aggravated by peristaltic

action, and amounting, frequently, to positive agony. The severity of the Disease is estimated by the degree of intolerance of pressure. We discover this, not alone by the exclamations of the patient, but by the facial expression peculiar to this Affection. The nose appears unusually pointed, the forehead corrugated, and the whole countenance indicative of dolorousness and anxiety. Not unfrequently, the face is of a leaden hue, attributable to imperfect aeration of the blood. There is also tumefaction of the abdomen, at first tympanitic in character, but subsequently due to the effusions of serum into the peritoneal Cavity. There is, however, considerable diversity in these manifestations, dependent on the condition of the muscular fiber. In those whose abdomens have, from any cause, been recently distended, ~~from any cause~~ there is, of course, readier and more rapid distension. The urine is

commonly scanty and dark, the pulse frequent and soft, the skin hot and dry, the respiration quiet, and laborious, and the bowels constipated from implication of their muscular coats. Generally, on the second day of the disease, the pulse grows tense and corded, and rises to 120 or 130 in the minute. The tongue becomes covered by a whitish or cream-colored mucus, and the thirst is urgent and distressing. The advance of Peritonitis is rapid, when acute, and unless combatted by vigorous treatment its march becomes one of triumph and terminates in death from exhaustion of the vital energies. This may occur in from 16. to 24 hours, but the average duration is about a week, though it is sometimes prolonged to the 30th or 40th day. A small, weak, and quick pulse, a sudden suspension of the pain, a hollow and ghastly countenance, coldness of the extremities, and sometimes ^{coma or convulsions,} announce the impending dissolution.

Such, in brief, is the assemblage of phenomena attending the majority of well marked cases when running to a fatal issue. In more favorable instances, however, several of these symptoms may be absent, or the whole of them less marked, when the amelioration is rapid and Convalescence established in a few days. After the danger is averted, a tumor, answering to the form of the intestines, may sometimes be felt for some time. Peritonitis may terminate like other inflammations, in Resolution, effusion, gangrene, or by becoming chronic. The character of the effused fluid is various. Thus it is sometimes serous with or without some commingling of bloody matter, or it may be puriform, or albuminous, or all of these combined. When pus & lymph are effused, it is doubtful whether they are ever absorbed, and such cases usually terminate fatally, or pass into the chronic form. When the effusion is fairly begun, the abdomen is dull on percussion,

the patient shivers, there is palor of the countenance, and frequently, coldness of the extremities and a sudden suspension of the pain. Termination by Gangrene, though of occasional occurrence, is one of extreme rarity.

Chronic Peritonitis. The approach of this disease is insidious and almost imperceptible, which characteristics may be maintained until a short period before death. The pain is at first slight; except on considerable pressure, or pressure made in some particular direction. The pain is dull, obscure, and deep-seated, rather than acute, and, in many cases, the patient complains only of a feeling of oppression, weight, and weariness of the abdomen, which is at the same time hot and dry, particularly at night. The abdomen may be either enlarged, or unnaturally flat. The bowels may be either constipated, or there may be alternations of this condition with diarrhea. The evacuations are clay-colored, and often mingled with portions

of undigested food. Very often there is no tension of the skin as in the Acute Variety, but the integuments sit loosely upon the peritoneum which is felt beneath as a loose bandage binding down the intestines. Towards the close of the disease the diarrhoea becomes more constant and the dejections peculiarly offensive. The pulse in the morning is nearly natural, but towards evening it grows more frequent. At this time also there is more difficulty in breathing, with hectic flushes of the face and nocturnal perspiration. Chronic Peritonitis, when occurring in those of a scrofulous and debilitated habit, is frequently accompanied by mesenteric engorgements and tuberculous formations within the abdomen. These may be regarded as local manifestations of a general diathesis. We may suspect this condition when the disease cannot be referred to previous acute disease or to affections of the viscera. While the

exciting cause may be irritating contact of the tuberculous germs with the inflamed membrane, it is easy to see that this condition may be perpetuated and aggravated by subsequent determination to the vicinity of those cachectic elements which had before been latent. In such cases the disease may stial on for some time, committing the most extensive ravages, with an entire absence of criteria by which we may judge of its existence. In the advanced stages the abdomen feels lumpy or doughy with fluctuation, generally localized by adhesions. The motions are slimy and offensive, the pulse habitually frequent and the ^{lingue} ~~pulse~~ either furred and red, or glazed and dry. The diarrhea is constant; impaired nutrition is shown by the gradually progressing emaciation, and the disease hastens to a fatal termination. Tuberculous Peritonitis occurs most commonly in the young, and is not usually attended by any considerable effusion.

Diagnosis. Peritonitis was formerly thought to be distinguished by the pulse being above 100 in the minute, by the permanence of the pain, and by its producing no inclination to go to stool. But modern experience fails to confirm this opinion, the disease when partial or chronic being hardly distinguishable from inflammations of the viscera enveloped by the membrane, particularly when occurring simultaneously with those affections. Still the nature the character of the pain the peculiarity of the pulse and the history of the case furnish indications of value to the medical judgement. Enteritis is the disease most commonly confounded with peritoneal inflammation. Here, the most valuable diagnostic sign is the tolerance or intolerance of pressure. If this be attended with no considerable aggravation of the pain, still more, if the latter is mitigated by the operation, the disease is probably enteric. The pain of pure

Peritonitis is apt to be more superficial, there is greater disposition to lie in one position, and constipation is less likely to be absent than in the former disease. Abdominal muscular spasmodism may be mistaken for Peritonitis on account of the pain on pressure. It is however a disease of rare occurrence, and is unattended by nausea and vomiting. The diagnosis between inflammation of a viscus and its peritoneal investment is difficult, and, I may add, valueless when determined, since the treatment of both affections is identical. Peritonitis may be simulated by Hysteria, but in the latter disease the urine is pale and copious rather than scanty and red, the pulse is more natural, and uterine disturbance is frequently present as indicated by concomitant symptoms, the correction of which is marked by such an amelioration as to leave no doubt of the Hysterical or neuralgic character of the disorder. Assistance is also furnished in the various forms of peritonitis by auscultation, especially when the

disease is synchronous with others which simulate it. When the natural secretion of the membrane is imperfect or suspended, or when it is replaced by morbid fluids or concrete exudations, the peculiar and characteristic friction sound may be heard when the walls of the abdomen are made to move upon one of the solid viscera by the hand, by a deep inspiration, or by a change in position. (Wood.) This impression may also be perceived by the touch when the hand is laid on the inflamed part at certain periods of the affection.

Causes.

The causes of this disease are those of ordinary inflammation, as wounds, operations involving the membrane, chemical injections into cavities, to which may be added, according to Broussais, an epidemic constitution of the air, as well as metastasis from other organs. The discrepancy of opinion which pervades the literature of the dis

case would be greatly obviated by considering it in many cases, as purely Rheumatic, since it is not unreasonable to suppose those diseases described by Wood and others as rheumatism of the abdominal viscera to be nothing different from rheumatism of their serous tunics. Peritonitis may also result from Enteritis, the morbid condition being transferred from the mucous to the serous coats of the intestines, with subsequent agglutinations of the peritoneal inflexions, or perforations which allow the feces to escape into the cavity of the membrane. Another cause is the retrocession of cutaneous eruptions. It commonly assumes, in these instances, the phlegmonous type, marked by an extreme severity of the symptoms, an early and rapid decline of the vital energies, and a general fatality of termination. In some instances Erysipelas has primarily attacked the throat, and afterwards has travelled downward and transmitted a phlegmonous inflammation to the Peritoneum.

Prognosis. This is dependent to a great extent on the promptness of treatment, the form of the case, the extent of the inflammation and the previous condition of the patient. If he be young and vigorous, and if the disease be of the acute variety there is a reasonable hope of recovery. On the other hand advanced life, bad air, poverty and grossness of habit lend gravity to the case, and render relapses when they occur, more commonly fatal. The prognosis will also be influenced by the absence or presence of complications, these often constituting the principal difficulty of the case, modifying the course of the disease or prolonging it till the system is exhausted. A continuance of Thoracic respiration, an increasing tumefaction and tenderness of the abdomen, excessive vomiting and undiminished thirst, a weak and fluttering pulse and a Hippocratic Countenance are all discouraging circumstances, and indicate a probably fatal termination of the disease —

When the Affection is of the Chronic or Tuberculous variety we can entertain but feeble hopes of its removal. Though Life may be indefinitely prolonged, the disorganization is apt to become more and more extensive until its latest period

Pathological Anatomy.

The morbid appearances presented by the peritonæum as a result of previous inflammation are varied by the type and duration of the disease. When this has been of a sthenic grade, in a patient of robust constitution, the membrane is not only dull from a loss or diminution of its proper lubricating fluid, but rough and thickened by depositions on its surface of an albuminous substance, mingled with bloody or puriform matters. This deposit at a later period becomes organized by prolongations into it of the subjacent capillaries, by which the contiguous surfaces of the membrane are agglutinated together. Where the parts are more movable, the viscid exudation is drawn out into

stringy connecting filaments. This substance, which is of a light amber or greyish color, is known as coagulable lymph. The adhesive process may commence as early as twenty four hours after the commencement of the exudation, and increases as the latter becomes more abundant. The organization begins in numerous vascular points or patches, which become arborescent and coalesce as the disease advances. The morbid structure when once organized becomes denser, thinner, less turged, and more analagous to serous membrane. The peritoneum, on the other hand, within the areas of the morbid attachments loses its true character and becomes more cellular. These appearances are presented by that portion of the membrane which lines the abdominal walls as well as that which forms the intestinal tunic. When the disease has been of a phlegmonous or asthenic character, these appearances are uncommon. In these cases the exudation instead of being thick, viscid, and tenacious, is likely to be a turbid serum.

The peritonæum is also softer, sodden, more easily torn, and less ready to participate in morbid structures. Where the disease has been chronic, the omentum appears thick and fleshy, and is sometimes covered by vesicles of a considerable size, containing a serous fluid. The subserous cellular tissue is frequently the seat of minute bodies of a tuberculous character, enclosed in a cellular envelope, and appear to be less the result of inflammation than of a strumous habit of the general system. Bodies of a similar appearance but of a different nature are also found upon the peritonæum. The fluid effused in chronic ^{Peritonitis} is usually whey-like, or milky, and of a sickening odor. The intestines are contracted by adhesions and the valvulae conniventes brought close to each other. Besides this, ulcerations of a probably tuberculous origin sometimes form unnatural foramina between different portions of the intestinal tube as the ileum and colon, allowing during life of the exceedingly rapid transit of food or



...ine; in either direction, through the body. This process is commonly preceded by a complete blocking up of the membranous inflexions, with semi-solid masses of Concrete and partially organized lymph, and the formation of ligaments which crowd the intestines upon each other, creating sometimes invagination, attended by all the symptoms of strangulated hernia. Cartilaginous alterations in the membrane have also been noticed, though not certainly due to inflammation.

Treatment.

The treatment of Acute Peritonitis includes all those measures employed to reduce general and local inflammation. In the early stage, when the pain is agonizing and the vital powers active, venesection should be practiced in a manner calculated to produce a prompt impression on the system. Twenty five or thirty ounces of blood may be abstracted, and if relief be not apparent the operation ought to be repeated in the

course of eight or ten hours to an extent according to the emergency of the case. The pulse here is not to be strictly regarded, and appearances of debility being ^{frequently} ~~uniformly~~ incident to this disease should not intimidate the practitioner from this grand remedy - This should be followed by calomel and opium. The opinion of the Profession is unanimous concerning the propriety of these two remedies. Ten or fifteen grains of the former, and two or three of the latter will prolong the sedative effect of the bloodletting, calm the circulation, and tend to overcome the morbid action. The local should follow general bleeding, and for this purpose leeches should be applied to the abdomen in numbers proportional to the emergency. This is a measure never to be omitted as the capillaries of the part remain gorged after abstraction from the arm. Peristaltic action should also be suspended, and in no way can this be done so effectually as by the administration of opium, in appropriate

doses every three or four hours. Fomentations by a few folds of flannel wrung out in warm water or some weak narcotic infusion and sedulously applied, will also be of service in soothing the pain and promoting cutaneous exhalation. When the system is under the influence of opium the bowels if necessary may be moved by gentle aperients if the stomach will bear them, or by enemata of olive oil, turpentine or starch. The stronger cathartics as well as the turpentine stupes advised by some authors are to be avoided as likely to provoke too much peristaltic action and consequently to increase the sensibility of the membrane. The establishment of ptysalism is generally favorable, though many cases proceed to resolution without it. Where some tenderness remains after the above treatment has been acted upon, considerable advantage may be expected from blisters applied to the abdomen and a free discharge kept up by dressing the blistered surface by mercurial ointment. The *Veratrum*

Viride which has proved so valuable a remedy in Pleurisy would undoubtedly be of service in Peritonitis also, were it not for the gastric irritability so often present in the latter disease. There is another article, however, as yet but little known to the Profession which appears to me particularly adapted to this emergency.

This is the *Gelsemium Sempervirens* or yellow Jessamine. That the *Gelsemium* is vastly superior to the *Veratrum* in every form of febrile and inflammatory disease, says a recent writer, no one can doubt who has employed the two remedies to any extent. It allays the febrile symptoms, quiets nervous excitement and sensibility, reduces the pulse and promotes the secretions. *Digitalis* has also been recommended as a useful article if the disease has been in a great degree subdued, and the pulse still remains sharp and irritable. Flatulent distension may continue for some time after the severer symptoms have been relieved. This is probably owing

to a want of Contractile power in the intestines, and may be treated by injections of the infusion of Cinchona or beef tea. Where the disease is more asthenic in its tendencies it must be combatted by Stimulants. For this purpose quinine or ammonia may be combined with the calomel and opium. While the disease is active the food should be light and farinaceous, and the drinks acidulous. The wearing of flannel next the skin and the avoidance of exciting causes should be enjoined during and after convalescence.

It is embarrassing to say what should be done when Peritonitis has become chronic. Whatever the nature of the treatment may be, it is likely to prove of little avail. The most the physician can do, commonly speaking, is to direct his attention to the general health of his patient, to alleviate symptoms as they arise, to resist the process of disorganization, and to postpone, as well as he is able, the advance of the fatal issue.

For this purpose the measures employed in the acute affection are to be modified ~~not~~ ^{and} ~~modified~~ according to the cause and complications of the disease. Where this is dependent on the rheumatic or scrofulous diathesis the alteratives may be employed with more or less benefit, as the iodide of potassium with opium and Sarsaparilla given in small doses, and continued for a long period of time. In severe and more advanced cases, we may resort to the iodide of mercury with a view of altering the formation of adhesions, or of favoring their removal by absorption an event which sometimes, though rarely, takes place. As the condition essential to the production of these structures is one of exhaustion of the vital powers and depression of the assimilating and circulating organs, we may hope for a degree of ~~success~~ ^{benefit} from Tonics. In anemic cases, without much ~~debility~~ irritability, some of the preparations of iron may be administered. The official Compound of this metal with

iodine will be suited to some cases, while in others some of the vegetable tonics will be better borne. A venous condition of the blood will be benefitted by the chlorate of potash with Sarsaparilla. Light wines and malt beverages may be prudently allowed. When the disease is associated with Hepatitis, daily mercurial inunctions over the region of the liver or paintings of Lugol's solution should be tried in conjunction with other means. When accompanied by excessive discharges our reliance will be upon Opium and the emala appropriate for Diarrhea and Dysentery. Occasional leechings should be practiced through the course of the disease according to the urgency of the pain and tenderness, and attention should be paid to the state of the bowels to prevent fecal accumulations. When the effusion is considerable we may endeavor to promote its removal by Diuretics. In this case Calomel in combination with Squills and Digitalis, or the

Trailing Arbutus in the form of an infusion may be tried, as an internal remedy, or the diuretic tinctures may be applied endermically, as advised by Broussais, especially if there be much irritability of the stomach.

Although active purgatives are commonly prohibited in this disease, Dr Eberle states that in some cases he has seen decided benefit result from the following mixture:-

R Potass. Bitart.	ʒij
Pulv. Scill.	ʒi
Pulv. Sulphat. Potass.	ʒij
Tart. Antimonii	grij
M. ft. Solutio.	Take ʒj three or four times daily.

Dr. Charles Hooker of this Institution, who has had no inconsiderable experience with the chloride of gold, regards this agent as one of our best remedies in this affection. He is in the habit of administering it in the form of pills containing one twelfth of a grain each. The chloride appears to operate as a general alterative, and locally as a stimulant to the secretions and absorbents of the membrane,

and thus to preserve or restore its functional equilibrium. By some of these means continued for a long period of time, an improvement can sometimes be made in the affection, and a recovery gradually effected.

Quinine and its Substitutes.

So great is the uniformity of opinion in regard to the efficiency of quinine as a prophylactic and cure in the treatment of malarial fever that few attempts would be made to associate any remedy as a substitute were it not that the large and constantly increasing demand for the alkaloid has not only so enhanced its value that many and they the most needy, can not obtain it, but contrary to the general law of demand and supply has threatened also to destroy its production.

The bark from which it is obtained grows in South America. The region where the cinchona tree abounds is an extensive one stretching along the eastern slope of the Andes from 1° south to 11° north latitude. The *cinchona calipaya*, royal

yellow bark is found however only in the forests of Bolivia and Carabaya in Peru.

It would seem as though a region of so great extent as this could furnish an almost inexhaustible supply. yet from the testimony of many travellers who have explored it within the few years past we have good reason to believe that the cinchona forests are rapidly disappearing and that unless immediate measures are taken to avoid the evil quinine must cease even long to be used as a remedial agent for want of supply.

Previous to 1857 all of the best cinchona exported from South America was gathered in the Province of Cuzco. The forests of that district having been nearly stripped of the tree the bark-gatherers turned their attention to those of Peru.

These we are informed are likewise fast disappearing. There is no protection for the cinchona. Every one can gather it when and where he will, there being no restriction save that by law of Congress all bark gathered in Bolivia must be sold to a company having the monopoly of the trade. The same law of

gathering the bark is directly calculated to destroy its growth. The natives instead of taking off the bark in strips as our economical Yankee does the slippery elm, and leaving sticks on the tree so that it can cover itself again either feel the tree or leave it entirely.

To prevent the rapid destruction of the bark tree a decree was issued in 1837 also in 1850 prohibiting the cutting of the bark for the period of three years. This however could avail nothing for it takes a lifetime for the tree to grow to its common size.

Dr. Weddel says of Bolivia, "I have frequently met with them (the cinchona) every where in the vicinity of villages; now I find a tree of a few decimeters in diameter it is necessary to make a journey of several days duration into the heart of the forest."

Mr. Mathews during frequent journeys into the forests of Guayaquil met with an old tree though young plants and roots abounded. Mr. Spruce says that in the cinchona forests of Ecuador there does not

remain a single plant large enough
to produce seeds. The people of Cambodia
It is said are in the habit of breaking
off young branches and sucking them
with the glands as if sucking gum
for a new supply, thereby the place of
the old.

It was formerly supposed by many
that the natives did not consider the
cambodia bark a remedial agent.

It is used so extensively among them
that the Dutch gatherers go to great
of course, but for no value to the
gummers.

The amount of cambodia used
annually is enormous. The English
government alone spends 50,000
yearly for the alkaline used in the
India service. According to the
G. H. H. estimate, which he considers
very low, "those who swallow gummers

throughout the world are said to
to consume ten thousand quintals
one million pounds of cocaine.

Back to America! The boats of La
Paz for several years passing 1000
occurred as much as fifteen thousand
quintals, one million and four hundred
thousand pounds yearly. It is the
act. of Exploration of that of the same.

The fact that the cocaine
boats have been rapidly disappearing
has caused no little anxiety in those
countries where the use of the quinine
has become almost indispensable.

The English government with
the characteristic energy which
it always displays when the welfare
of its own subjects is involved, has
undertaken to abolish the cocaine
cultivation. It instructed Sir Clement
Markham to attempt

the introduction of the gumine-bearing plants into India. He procured a large number of plants from South America but they were so much exposed during their passage over that only a few of them survived the voyage.

Subsequently he was more successful and in the year 1861 he had succeeded in starting over two thousand plants of the several varieties on the Nilgerry Hills near the Government Gardens India.

The plants at the last account were in a very flourishing condition some of them beginning to send forth branches. Attempts are being made to introduce the cinchona tree into Ceylon, Jamaica, Trinidad and other localities.

It is well known that the Dutch have succeeded in introducing the valuable plants, the cinchona into

Barros. They have now upwards
of half a million of young trees
chiefly of the calisaya species
and it has been satisfactorily
proved that a higher percentage
of alkaloid is obtained from the
trees growing in Java than from
those which have flourished in their
native forests. So jealous however are
the authorities of their success in
the experiment that Dr. McWilliam
on a recent visit to that island
was prohibited from bringing
away a single plant or seed.
vide *Malaya Quarterly Journal* Med. Science.

In 1850 the Society of Pharmacy
of Paris offered 6,000 francs to which
the Minister of War added 4,000
francs for the discovery of a substitute
possessing equivalent febrifuge properties
to quinine or for the artificial formation
of the alkaloid. Time elapsed without

in neither of which were thought nothing
of a prize.

It is not improbable that the naturalist
may yet discover or the chemist by his
synthetical manipulation convert a
substitute equal in all respects to quinine.

Indeed it would be a strange provision
of nature if among the many remedies
which she has bestowed so lavishly upon
diseased humanity there should be only
one for malaria.

Although quinine has no equal
as an anti-intermittent, it is not
without its rivals. A cursory notice
of some of them will be given here.

First among the list is arsenic
(Dr. apoevickov, masculine so named from
its masculine power in destroying
men, speaking of its use on a page
Dr. Watson says "It carries with it three
marked advantages: it is efficacious,
it is cheap, it is tasteless. It is mild

adapted by these qualities for the poor
and for children and for patients of
every age and rank in whom there is
much irritability of stomach present;
but then it has also the serious objection
of being an active poison. One over dose
may be fatal; and even its long
continued use in minute doses leads
sometimes to evident and lasting
disorder of health. Arsenic therefore
is an unsafe remedy to be put in
the hands of the ignorant. It should
never be administered except under
the immediate supervision of a medical
eye; and even then it requires to be
given with much caution.

Dr. Charles and others think that
its use is contra-indicated in persons
of cachectic habit or of scorbutic
tendency as it is apt to cause dropsical
effusions and symptoms of general
depravation of the system. Its use

is inferior also in ethnical constitution
and where a strong ethnical tendency
prevails. Pereira says "its remedy"
has been more successful in the
treatment of ...". Headland
claims that in aque arsenic
possesses the advantages over quinine
that it may be administered
with safety during the pregnancy,
but admits that it is perhaps easier
to arrest the disorder by quinine
than by arsenic, for quinine may
be given in large doses which can
not be done with arsenic. From the
above authorities we may justly
conclude that arsenic is a powerful
and unsafe remedy and is no
way suitable to supply the place
of quinine. Substitutes of zinc oxide
next among the numerous anti-
iodic. Dr. Charles says "I have
very rarely failed to ...".

same as working with it as with
quinine. Dr. Smith found it to cure
cases in which bark alone we
had failed. Dr. Robert Calais saw
in London and the West Indies
cases of intermittent cured by
the oxide of zinc which had
formerly resisted the Peruvian
bark. L. & T. treat it highly of
sulphate of copper as an anti-malarial.

The nitrate of potash has been
much used by the modern physicians
as an anti-intermittent. Dr. James
Sawyer of Billston, Mass. in a com-
munication to the Boston Med. and
Surg. Bureau Oct. 16 1842 gives the
following formula for its administration.
℞. Potassae nitratis, grs x; ℥ss. Vinigallici
vel aquae ʒss. M. Take immediately.
He adds: "The above prescription
I have used with great success
in the case of an intermittent fever

even where quinine has failed. In my opinion no preparation is equal to it if it possesses antiperiodic properties completely and may be administered when the stomach would not tolerate quinine. I deem it a specific in ague for I have never failed to arrest the paroxysm if uncomplicated. Some will also find the tincture less disagreeable than those cases cured by quinine. In the cold stage if administered in a full dose and the patient be placed in bed and covered with blankets he will in a few minutes experience considerable heat which will be followed by copious perspiration and every unpleasant feeling will be gone. When it is more agreeable the powder may be placed on the tongue and permitted slowly to dissolve.

I shall not attempt to explain the action of this medicine on the system in the cure of ague but will leave that to older heads than mine to determine; still we know that after it is taken into the stomach and absorbed it has the chemical effect of changing the dark-colored venous blood to arterial or at least it changes its color. It acts on the kidneys as a stimulant, producing diuresis

as well as diaphoresis: and in this manner may
rid the system of the poison that causes ague,
provided that poison is produced by the retention
of malarial matter destined for excretion. This medicine
in its operation more clearly reveals a natural
mode of curing this malarial fever than any other;
as she cures by copious diaphoresis as well as
diuresis or in other words by elimination.

"I contend that this remedy possesses advantages over any other now in use: especially
for its antiperiodic properties which it possesses
perfectly."

Dr. Calceagno, of Sicily, and Dr. Calvert
Physician to the British forces at Palermo use the
charcoal with success in the treatment of
intermittent: and as sulphur has been highly
spoken of as an antiperiodic by Dr. Smith and
and Dr. Dickson, perhaps we shall next hear
ginseng recommended as a remedy for
ague. A most singular remedy has been
held in repute as an antiperiodic
namely the root of the black spider. It was

mentioned as early as 1644 by Thamer in his
Dissertation. Dr. Gillespie used it successfully
in more than sixty cases while attending some
French prisoners on the Isle of Man. Subsequently
Dr. Robert Jackson used it with marked success
in the West Indies. The first A. C. I. I. I. I. I.
occurrence of the intermittent paroxysms more
abruptly and more effectually than even bark or
arsenic. Perhaps the success of the remedy might
have been attributed in part at least to the active
bleeding, vomiting and purging, excess which the
patients were made to undergo at that time.

Dr. Jackson says "Vomiting, spasms and twisting
in the bowels appearing as modes of febrile action
are usually allayed by it. These may result
from it where the vomiting and diarrhoea are not
with real inflammation or progress to a termina-
tion. Dr. Oberler used it with but little effect as a
febrifuge. In his own person it produced the most
delightful state of mental and corporeal tranquillity
far exceeding any which is caused by opium.

Dr. Condit found it in many cases to suspend

the European respectively as genuine medicine in a few cases it failed. Dr. Stevens's experience with the drug though limited was analogous to that of Dr. Jackson. Cinchona has many strong advocates especially among the Italian army.

Dr. Belli of Venice and Dr. Gordon of Lyons after using it extensively in the treatment of Malaria have arrived at the following conclusions: 1. The febrile period of Malaria is to be energetic and rapid. 2. As this drug is much palatable but of moderate effect it is more convenient than quinine and its succedanea exhibiting a great activity in a very small amount. 3. It neither changes the color of the blood nor any of the

bowel & secretion but the color of the blood is improved and the urinary secretions are rendered more abundant and more effective in dissolving the blood.

Another remedy which has been used of late in the treatment of intermittent and almost every other disease is the bark of Cinchona that is the alkaloid of Cinchona was brought into use about the year 1870 and was given for a long time in a decoction of Cinchona bark or of opoponax the bark in the

beatment of scurvy typhus and other diseases.

Thomas Garret, of Glasgow, went so far in his experiments with it as to make a careful calculation of the exact amount of oxygen introduced to the system by a given quantity of the chlorate. Garret. M. Serment of Paris published the results of his experiment with this remedy which seem to prove that it has no oxygenising power whatever. It is detected in the saliva within five minutes of its ingestion and less minutes later in the urine. The duration of elimination does not seem to depend on the dose. The process reaches its maximum in about half an hour lasting from fifteen to thirty hours. M. Serment took twenty grammes daily for several days successive with no disturbance of the system. M. Gouquet took thirty grammes (or 400 nearly) with impunity.

According to M. Serment's observations it acts when given in large doses as a diuretic and exerts a sedative influence upon the circulation when unduly excited. Dr. James Eschscholtz recommended its use as prophylactic and cure for epidemic cholera. Many physicians in this country

have used the chloride in various forms for inter-
fevers but not with sufficient success to warrant
us reposing much confidence in its action
on the system is not much unlike that of
the nitrate of potash. The theories advanced
thus far concerning the action of these two
salts must be hypothetical: for the operations of
the chemical theory cannot explain how the
venous blood is changed to arterial, or how it acquires
an arterial color, viz. by receiving oxygen from
the salt, nor can the chemico-physiologist tell
how the oxygen changes the blood and is then
eliminated through the secretions in the same
state of combination as when given.

There are many other remedies belonging
mostly to the class of vegetable & mineral
have been used in the treatment of intermittent
some of them with decided success but they
need hardly be mentioned in this connection
as they are confessedly inferior to those first
noticed.

Marcus B. Fisk.

Diagnosis is that part of medicine which has for its object the ascertainment of disease; and is one of the most important branches in that study.

Correct diagnosis is to the physician what the chart is to the mariner; by it he is enabled to avoid the dangers, which, like sunken reefs, lie hid ready to wreck both vessel and pilot.

False diagnosis pronounced by a young physician (in an enlightened community) might in many instances, not only kill the patient, but ruin his own future prospects.

For example, - a case of small pox if not recognized early, might not only prove dangerous to the patient; from the treatment adopted, or from want of proper treatment, and to the physician, from his failing to know

and wear of the disease; but the
community at large, who suffer
from its effects, would not give to
it with interest, this error of omission,
especially if coming from a young
doctor.

This disease is not so easily
known at first as are many others;
commencing as it does with the usual
symptoms of all febrile diseases;
it has at its commencement, symptoms
common to this, (and not common
to other forms of fever,) by which it
may with a tolerable degree of certainty
be known.

Disease is any deviation from the
standard of health in the living;
it may be organic or functional,
involving one or all of the organs
or their functions; and according
to that degree of severity, or of complica-
tions in which it exists, will

responsibility of the physician under
provision it is to manage it; increase or
lessen.

Therefore, we may call the same, an
artificial, which is slightly interrupted,
but of its presence, location, and course.

A language it is, which to understand
requires more study and atten-
tion than all others. A physician of
closest application, would not find
it with all its indications, especially with
the same indication of one common to

The success of any
practitioner must depend in a great
measure on his ability to understand symptoms
or understanding, there is to know
the location of, and the particular
disease with which he has to contend
and from that knowledge with his
treatment be governed.

But symptoms forming the language
of disease, are addressed not merely

to one or two, but to the aggregate of
our senses, - not one of our sense
organs but is capable of receiving more
or less valuable information in disease
and upon that degree of perfection
attained by cultivation of these
faculties will much of the skill of
the practitioner in recognizing its signs
and character depend. —

The eye determines in disease, the
various circumstances in which color
of the external organs, and surface, —
of the secretions and excretions, or in
which the expression of countenance
and position of body are indices, —
Heat or its absence, dryness or moisture
and that volume of signs, the pulse
are presented to the mind by the
sense of feeling. —

The ear determines the existence, char-
acter and intensity of secretions
more particularly those of the respira-
tory system. —

The smell although generally considered
of less importance than any of the
others, intervenes in some of those
breathed forms of disease, by a patho-
nomic sign, neither to be misunder-
stood or overlooked, as any one who
has perceived the odor emanating
from that source of disease, small
Pox, will readily believe, —

And lastly the sense of Taste may
relied on, (if we are not willing to
sway by the decision of the other sense
in the diagnosis of a disease, at
least; Diabetes, —

Symptoms may be divided into
Vital or physiological, and Physical,
the vital symptoms are such as the
pulse, the existence of pain, the bow-
expression &c —

²⁰¹
The physical symptoms are those that
consist of morbid changes, disorders
or impeded functions, and altera-

Physical symptoms are the more consistent
and less likely to mislead, and by the
well regulated practitioner with more exact
decide the distinctive character of
disease, — yet the advantages to be
derived from the due consideration
and combination of both classes of
symptoms, should not be overlooked,
or ignored by partiality for either.

Of all the symptoms seen
is the most constant, and an impor-
tant one in diagnosis, varying as it
does in kind, and degree according
to its locality, or the different kind
of morbid action which it accom-
panies. — Thus the pain accompa-
nying inflammation differs from that
attending those diseases which are
independent of it: — it differs also
according to the different organs or
tissues involved in inflammation,
for example, the pain accompanying

Pneumonia, differs from that of Pleurisy in pneumonia the pain is variable; if the inflammation is deep seated, the pain is slight; and it is only in those cases where the pleura is involved in the inflammation that the pain is severe. —

Pleurisy from the commencement is characterized as a sharp stabbing pain, usually situated beneath one of the breasts. —

Sometimes it is a matter of the highest importance that the exact organ or tissue diseased should be known, also whether that disease be inflammatory or not. — It is of importance to distinguish between Acute Gastritis (inflammation of the stomach) and certain periodic pains existing in the same organ, as the treatment in the two cases would be very unlike.

A pathognomonic sign may often be found, by "Manual exploration" — by percussion and auscultation

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In Intestinal the patient will generally
be found lying on his back, changing
his position as little as he can possibly
avoid, and the suffering will be
greatly increased by pressure in the
"Epigastric region" —

In Intestinal or enteritis of the stomach
the patient will be found assuming
a variety of attitudes, and the
suffering generally relieved by pressure.
Enteritis Inflammation
of the bowels may be mistaken
for colic, and the remedies im-
prove fatal, — and here we have
the same means of discrimination
as in the last named disease, —
the pain of enteritis being increased
by pressure, while that of colic
is lessened, or at least not made
worse by it. —

Again abdominal exploration is
a valuable assistant in the diagnosis
of disease, where symptomatic signs
exist to bewilder the practitioner —



those pains which appear in a
part distant from that affected
by disease, - for example, pain
in the head, from derangement of
the stomach. - pain in the right
shoulder, from inflammation of
the liver; - pain in the mamma
from disorder of uterus &c -
It is always a question of
importance to discriminate
between pains arising from
disordered functions, or morbid
changes, and those arising
from sympathy. -

In making out a diagnosis
the physician will often be assisted
very much, by knowing the pre-
ceding history of the patient, - his habits
of life &c - and the treatment
of the same disease, in many
instances, might be materially
changed, by the possession of ac-
tual knowledge by the physician.
for instance



Dropsy may arise from organic
disease of the heart, or from the renal
— as a sequel of scarlet fever
or of drinking too much
"Bad Rum" — and the physician
knowing the previous ^{history} of the
patient, would pronounce
accordingly, or make out his
diagnosis, & from that his plan
of treatment.

When valuable information may
be given the physician, by the
patient or attendants, and if he
gives too much credence to such
information, and pronounces
his diagnosis from it, without
making due examination,
he will too often find himself
wanting right in the subject.

Newton, Bushnell, Hall







Pneumonia,

by

Cyrus Edwards Humiston,
of Cheshire Conn.,

Candidate for the Degree of Doctor of Medicine.

Pneumonia.

This is one of the most important diseases with which the Physician has to contend. It may occur at any period of life, but more commonly attacks those in the middle period, and of a sanguine and bilious habit. Under the general term of Pneumonia, the British writers comprehend every inflammation to which the thorax was liable; but the term is at present confined to an inflammation of the lower lobe of the lungs, and is commonly divided by some into the Acute, the Chronic, and the Suppurative.

The term Lobular Pneumonia is also applied to the affection when the attack is confined to only one of the

Lobe of the lung, Singular when exist-
ing in but one side of the chest, and
Double when both lungs are implicated.
Acute Pleurisy in general, during its
course, shows clearly defined stages. There
are first, the stage of Engorgement, second
the stage of Effusion, and lastly
the stage of Suppuration.

Causes.

Like the Pleurisy in general, the
most common causes are exposure to cold
and moisture, sudden alternations of
temperature, and in the children of some
a strong hereditary predisposition, and
certain Epidemic influences. It is also
an occasional result of Rheumatism.

Symptoms.

There are, in the acute variety of the
affection, well marked rigors, pains in
the back and limbs, a feeling of oppres-
sion of the chest, and the general indi-
cations of the early stage of Fever.

This is succeeded after a period of variable duration, by flashes of heat, pains of the thorax, laborious respiration, and cough. The pain is usually of a dull oppressive character, the pulse tense, full, and frequent, the cough peculiarly ineffective and unsatisfactory. The expectoration is at first scanty and colorless, but soon becomes more copious, viscid, and heavy, and changes in color to a reddish brown from admixture with blood, constituting the "Rusty Sputum" so uniformly mentioned in the Literature of the Disease. Not infrequently however, several of these symptoms are wanting, and the Diagnosis is difficult without a resort to Physical Exploration, the signs furnished by which deserve the highest consideration. The Stethoscope here demonstrating its value as an aid to Diagnosis, and

leading to conclusions which are verily erroneous. In the stage of Engorgement, percussion yields a dull sound beneath the Scapula or at the side, the respiratory murmur is feeble, and crepitation becomes less perceptible, and the bronchial sound more evident, both from the cessation of the vesicular sounds, and the superiority of the solidified, over the healthy Lung, as a conducting media of sound. Where resolution occurs, these sounds reverse their course, and the crepitant sound returns in the normal respiratory murmur. When the disease advances to the second, or stage called by Lunnas that of red hepatization, the Bronchony becomes more perceptible, and constitutes more particularly the distinguishing sign of this stage of the affection. In this stage the dulness on percussion is more marked. The

tubular sound is more clear during expiration, because the pressure of the respiratory muscles tends still farther to condense the lung, thus exalting its power as a conductor of sound. Third Stage or Stage of Suppuration. In this stage, percussion is less dull from the fact that the consolidation begins to give way to suppuration, and some amount of air reenters the diseased structure. For the same reason, the respiratory sounds less tubular, and ronchi can be heard in various parts of the chest. These ronchi are usually mucous, from the presence of the purulent matter with which the lung is infiltrated. The advent of the third stage is apt to be heralded by a sense of coldness amounting in some cases to positive rigor. The expectoration is thin and dark,

resembling foam. It is usually
seen at the end of the air and is
blown through the liquid.

Diagnosis.

This is usually easy. The disease is
distinguished from others by the
character of the fever, the
cough, sputa and haemoptoe, and
the large amount of effusion. It is
usually caused by the ordinary type of
the pleuritis, and is also seen
in uncomplicated Pneumonia, and
the disease on occasion in the latter
kind must change its character
with the nature of the patient and
the stage. The pleuritic rub-
or of the spots is usually
of a purplish or inflammatory
color, sometimes bears some resemblance to
Erysipelas, from which however it can
be distinguished by the nature of the



expirant rate, and the absence of dullness on percussion.

Chronic Pneumonia.

This may be either a consequence of the acute variety, or may supervene on Bronchitis, Asthma, or the capillary disease. The occurrence of suppuration is indicated by pain of the chest, a slow and "thrashing" kind, with frequent, dry cough, periodical chills and hectic fever. The expectoration of pus is often enormous from the sudden bursting of an abscess, placing the patient in danger of suffocation. Obstruction of the sympathetic is occasioned by this discharge, and from this period the patient sometimes dates the commencement of his convalescence. Occasionally the disease progresses even more rapidly than before. The pulse is low, there are colligative sweats, and gradually progressing emaciation and



debility undermine the system, which at last gives way, and death is the result. This form of the disease is less amenable to Medication than the acute, and constitutes the "Opportunistic" or "Latent" form of the disease, and when of a short duration the "Galloping Consumption" of the vulgar.

Typhoid Pneumonia.

Since the year 1806, Pneumonia has been frequently observed to appear as an epidemic, and attended by an Asthenic or typhoid condition of the entire system. This disease is described by Dickson, "Elements of Medicine" who was the first to give it an extended notice, as an inflammatory affection of the thoracic viscera, associated with the impairment of the sensorial, and morbid state of vascular action, which characterizes Typhoid Fever. At the time above mentioned, it appeared at Newford, Mass.

and was attended with great mortality. In 1812 it appeared at Philadelphia, in 1822 in South Carolina. It continues to show itself wherever it has once found a footing. This Disease was at first thought to be new, but is now considered as nearly, if not quite identical with that described by Boissier, Stokes, and other English writers as spotted fever. As observed in the United States, however, the eruption of the skin is not a constant symptom, and is seldom noticed in specimens of the Disease at the present time. Implication of various organs by sympathy, besides the lungs, is one of the peculiarities of this Disease, and at first led to considerable confusion in its description, some regarding it as a true Pneumonia, while others discarded it from any regular classification, regarding it rather as a

Hybrid malady, constantly changing
its manifestations, and difficult to
treat as a distinct affection. Thus,
as rigors, or headache, or pleuritis,
became the predominant symptom,
the Epidemic was called the "Cold
Plague," the "Head Plurisy," and
the "Bilious Plurisy." But for the
reasons previously stated, the term
Synchroid Pneumonia is perhaps inex-
ceptionable. Its exciting causes are those
which develop acute Pneumonia;
while a predisposition to its attack
exists in those circumstances which
depress the vital energies, as want of
cleanliness, insufficient or unwholesome
food, a confined or impure atmosphere,
excessive fatigue &c. The symptoms
are those of the pleuric accession, present-
ing however, some peculiar modifications.
The cold stage is commonly protracted.
Following this is intense pain of the head,

back, chest, and limbs. The state of the
skin is variable; being in some instances,
hot and dry, and in others moist. The
pulse is small, frequent, and compressi-
ble; the Respiration is laborious, as if a
heavy burden affected the thorax. Along
with this, there is dry cough, and great
prostration of strength. If the disease
tend to Resolution, about the tenth
day there is a mitigation of the symptoms;
the pulse grows fuller, the expectoration
is more free, the dyspnea less urgent, and
convalescence becomes established. But in
favorable cases, however, as the affection
proceeds, the teeth and mouth become
covered with sores, the dyspnea in-
creases, delirium and coma intervene,
the pulse becomes weak and fluttering,
and the disease runs rapidly to a fatal
termination. The Physical signs are dul-
ness on percussion, as in ordinary Pneumonia,
with a hardly audible Respiratory murmur.

Prognosis.

This is to be deduced from the circumstances attending the case. The affection is of course more grave the further it advances, and beyond the third stage the chances of recovery are very slight. The same may also be said when the Physician is called late, and the patient destitute of proper care and nursing, as is too frequently the case among the poorer classes. When pneumonia attacks both lungs, or is diffused over an extensive area, the case is one of great gravity, even though the degree of inflammation is comparatively moderate. Symptoms of Cerebral disturbance, as Delirium or coma are always unpromising. But where the opposite is true, the Dyspnea not very urgent, the expectoration copious, and attended by little pain, and the heart's action not much accelerated, a favorable opinion

may be given, and we may be it holds
that the disease will terminate in
Resolution. Until the reverse is
always to be regarded as full of dan-
ger, and the prognosis requires to be
guarded. High fevers and delirium,
a dark, dry, and fissured tongue, are
circumstances of discouragement. The
ratio of fatality from Pneumonia in
general is said to be, in Massachusetts,
one in fourteen; while in New York
City it rises to one in eleven. The mor-
tality is greatest in the variable months
of Spring and Autumn.

Morbid Anatomy.

The morbid appearances after death
from Acute Pneumonia will depend
upon the stage to which the affection
had passed. The stage of engorgement
is marked by a livid, or various color of
the pulmonary substance. Pressure com-
municates a feeling of crepitation to the

hand while at the same time, there is
an effusion of a frothy or serous fluid.
The organ bears some resemblance to
the spleen, and, containing air in the
vesicles, floats in water. In the second
stage, or that of *Reduputization*, the
lung feels more solid and firm than
is usual to the healthy s. p. l., and
sinks in water. When torn the sur-
faces present a red and granular struc-
ture, not very dissimilar to that of
the liver. The fluid which escapes on
pressure is noticed to be scanty, thick, and
bloody, and there is a want of the crepitant
feeling observed in the first stage, since
the cells of the tissue are now destitute
of air. In the third stage that of *Suppu-
ration*, or grey *Reduputization*, the blood has
lost all portion of its coloring matter, or
has been removed from the intercellular
membrane by pressure of the accumulated
pyrifera matter in the cells, and the color

of the lungs is often visible - and is often
According to some, the lungs are
+ don't evidence of three stages at one
and the same time. This is a slight
inflammation of the lungs is an upper and of
comparatively minor, and when noticed is
generally consequent in the Chronic
Affection. In some cases, these excavations
appear to have been filled, after the expec-
toration of pus, by a substance similar
to false membrane, while the portion
of the pulmonary structure in their
immediate vicinity is condensed and
hardened. In the Typhoid variety,
Gangrene is occasionally seen as a
result of the debased condition
of the system, either isolated or dif-
fused over a considerable area.

Treatment.

If the Disease is of a high inflamma-
tory grade from the outset, it is
proper to bleed, and administer, where

demanded, should be practiced early,
 since if delayed till "critical" respi-
 ration sets in, its benefits will be
 less apparent. At the same time
 it is to be observed that "case" differ-
 ing, the pathology and its frequency
 than formerly, the flagrant and
 sthenic form of Pneumonia having
 been replaced by that of a lower
 grade, in the majority of cases. Since
 the Cholera of 1842 there seems to be
 a general tendency of disease to favor
 the asthenic type. But where the
 opposite is the case, as previously
 remarked, Bleeding, both general
 and local will be of benefit. This
 effect may be still further promoted
 by tartarized Antimony, which may
 be given in the dose of one third of
 a grain every two hours. The patient
 should be kept as quiet as possible,
 and the Antiphlogistic Regimen

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strictly enforced. Calomel may
also be employed with advantage,
at first in a full dose, and subse-
quently in more moderate quantities,
insufficient to produce stypsis.
This is best when the disease has
advanced to its second stage, and
by its means we may hope to lessen
the amount of lymph which tends
to obstruct the vesicles. Should
the remedy have a tendency to pass
off by the bowels, it may be advanta-
geously combined with Opium. Where
the skin is hot and dry, cold or tepid
affusion to the surface is often very
grateful to the patient, and of utility
in moderating the general fever. The
refrigerating Diaphoretics may be
employed as occasion may require.
Where the pulse becomes weak and
frequent, the countenance slackens,
and the general evidences of a sinking

to the typical condition is apparent,
recourse should be had to the sup-
porting and stimulating remedies, a
bark tea, Wine, and Opium. The
or bounte of this wine is one of
signet services. Hays - Professor Wood,
in speaking of the tubercle, "When
the great oppression of breathing, the
cold skin, the frequent pulse, and
the sweat it might have indicated
the probable approach of the third
stage of the disease, and the absolute
necessity of supporting treatment, I do
not think it going too far to say that
I have repeatedly, in this condition,
known it to be the main agent of
safety to the patient." It probably
operates, under such circumstances, not-
only by a general stimulation of the
circulatory and nervous system, but
also by a special excitation of the
ultimate tissue of the lungs concerned

in the respiratory function. The stramon
tincture is another remedy which has
been extolled in the more sthenic
forms of Pneumonia. Dr. Woodward
was in the habit of giving eight drops
of the saturated tincture repeated
every three hours with the addition
of a drop to each successive dose until
the pulse was sufficiently reduced, or
nausea and vomiting supervened. When
the medicine is more than usually
disposed to nauseate the effect may
be counteracted by administering a
little morphine. A method of treating
Pneumonia by chloroform has recently
been introduced by the German physi-
cians, and it is reported with favor-
able results. When the cough is harass-
ing and constant and the expectora-
tion scanty there would appear to be
an objection to its employment by
inhalation to a moderate degree.

But it is almost unnecessary to state
that all specific modes of treatment
are to be deprecated. We may wish,
but we cannot arrest the disease,
and while we are in that complimen-
tious as they arise, our chief endeavor
should be to husband the energies of
the sufferer, until nature gains an
opportunity to reassert her sovereignty,
and to break up the chain of medi-
cation.

The Exanthemata.

I am about to speak of a group of diseases which present many points of interest to the practitioner of medicine.

They have received their name the Exanthemata (derived from the Greek $\epsilon\gamma\chi\alpha\nu\theta\epsilon\mu\alpha$, a flower) from an eruption, an efflorescence which appears upon the skin. This eruption although sometimes absent, is generally present, & its presence is often the cause of great & even fatal disorder in the system.

The diseases which constitute this group are, Variola, Vaccinia, Scarlatina, Rubella, Pustula Pestis & Ignis Sacer. There are other diseases which might perhaps be classed with them. Typhoid fever is often accompanied by an eruption upon the skin. Typhus fever is accompanied by an eruption which was called by Dr Jenner, the mulberry rash. But the diseases first mentioned are those

peculiarly denominated the Exanthemata.

The general characteristics of these diseases are as follows. They are all peculiarly contagious diseases. They rarely affect the same individual more than once. They are generally accompanied by fever; this precedes the rash & vanishes with its appearance except in some cases. They are Epidemic diseases: often committing great ravages in the provinces where they make their appearance.

I shall proceed to treat of the characteristics which these diseases possess in common, then of the methods which have been devised for guarding against them & finally of the treatment which from their general resemblance to each other would be proper for all.

And, first, these diseases are the result of a peculiar poison, introduced into the system from without. We have the most abundant evidence to prove that for each of them there is a specific poison. The history of small pox & of vaccination goes far to prove this. Small pox was

not known in North America before its discovery by Columbus; yet within a generation three millions of souls perished in Mexico from this disease alone. Its introduction there is accounted for by the visit of a negro, at the time suffering under the disease. Again, when vaccination has been introduced the disease has been almost wholly eradicated. What a prospect does this offer to the successors of Dr Jenner! the whole world may be freed from this disgusting pest, which is the destroyer of health, of beauty & of life.

Then again these diseases do not degenerate into each other. He who has been exposed to the contagion of small pox will be affected by small pox & not by any other of these allied diseases & hence we conclude that for each of them there is a specific poison -

The method by which this poison is introduced into the system is not known. It is in its nature so subtle, that, though evidence enough of its existence may be obtained, it cannot itself be discovered by any of the means which we possess -

The microscope shews nothing in the blood of persons affected by the disease, which can be considered the peculiar poison causing it. We only know that it may be conveyed from an infected person in every conceivable way & that it is often so conveyed when we cannot possibly discover the vehicle by which it is borne.

For instance: a sporadic case of scarlet fever occurs. We cannot learn that the patient has been exposed to any contagious influence & yet the disease may run through all its stages & communicate itself to the whole neighborhood. We know the disease to be eminently contagious when it has once made its appearance; we can conceive of no cause which shall account for its appearance unless it is contagion: for the disease is not caused by a specific poison & it is impossible to prove in any case that this specific poison has been generated in the system. What more reasonable inference, then, than this: that the disease is the product of some unsuspected contagion & that it never arises spontaneously.

The physician himself may be the poison bearer & instances enough have occurred in other diseases when

this has been the case.

We do not know how long a time this poisonous principle will retain its power. It is said that the vaccine virus may be kept unimpaired for years if properly protected from air & light. We do know that under the influence of free ventilation, of dilution with the external air, ~~that~~ it may be made almost innocuous - And this is one of the points to be regarded in treating these diseases. The poisonous atmosphere of the pest house, shut in from all contact with the external world, is sufficient to prostrate the strongest constitution.

There is perhaps, another source of contagion or rather another means by which the contagious poison may be borne. May not these diseases, originating in a specific poison be caught & given by our domestic animals. Not that a cat or dog might be affected with scarlatina, but may not this disease in a human being be transmitted through a similar affection in the animal, to others of the human species. The probable method by which the poison gains admittance to the system is through the pulmonary mucous membrane; here the blood has immediate communication with the external air & here it

becomes contaminated. Now in our domestic animals the mucous membranes, perform the same functions as in ourselves: the circulation is carried on in the same way; what more probable than that they may be affected with diseases of the same type as our own maladies - The theory has been advanced that the vaccinia disease is in reality small pox, modified in its character & lessened in its malignity by passing through the system of the cow. This may not be true: yet it seems a reasonable supposition; or if not why should it prevent an attack of variola which may otherwise be prevented by inoculation with the variolous virus itself.

After the introduction of the poison into the system a certain interval seems necessary for the full development of the disease. This period during which the malady seems to lie dormant, has been called the period of incubation, as if the germs of the disease having found a proper nidus had during this time been rendered fruitful. This period varies in length from ten to twenty days: the mean appears to be about two weeks - During this time there are no peculiar symptoms: although it would seem when so powerful

a malady is to make its appearance as though it wd be heralded by some of those signs which mark the onset of disease.

A knowledge of this fact is of value in our diagnosis of these diseases. Most of them come on with fever which makes its appearance at the end of the period of incubation. Now if the patient complaining of fever, be in a district where any of these diseases are at the time epidemic & he have within two or three weeks been exposed to any contagious influence, we may rationally consider him as threatened by the form of disease at the time prevalent & treat him accordingly. If the precise time of exposure is known our diagnosis is rendered more certain: since the precise period of incubation, for each of the Ex - is pretty well established -

What is the condition of the body during this period? As we have said no visible change makes its appearance: yet the seeds of the disease are there.

We cannot account for it: but we find that the end of this time the whole system is more or less involved. It seems as though during this period that the whole mass of the blood had become contaminated

Dr Watson's idea is that the poison introduced in small quantity acts as a ferment in the circulating fluid & that the eruption is a process by which this mass of disease is eliminated from the system.

From the time when the disease makes its appearance to the time of the eruption the malady makes constant & persistent progress. The constitutional symptoms are severe & the local malady the eruption often of great extent. The surfaces of the body are all affected with more or less severity at some period of the complaint. The skin is sometimes wholly disorganized: so that ^{even} if the patient recovers the whole epidermis comes off in scales, or crusts or in sheets, so that the whole of the skin of the hand may be taken off as a glove. The mucous surfaces too are affected. In both Rubella & Scarlatina the disease of the mucous membranes lining the nasal passages & fauces is one of the most distressing symptoms.

The mucous membrane lining stomach & bowels is sometimes so severely affected as to carry off the patient.

The serous membranes too are liable to inflammation: perhaps from their intimate sympathy with the skin.

The nervous system too, is also implicated & death

sometimes occurs from shock before the disease has made any great progress.

The sequelae of these diseases are often as disastrous as the diseases themselves. Anasarca, Deafness, a tendency to phthisis, inflammation of the bronchial membranes often follow attacks of Scarlatina, Rubella &c. To guard against these sequelae is a most important part of the physician's duty. This we can do to a greater or less extent, by attention to the diet & regimen of our patients.

Another great peculiarity of the Exanthemata is this: that one attack of disease is almost a certain safeguard against another attack of the same malady & this leads us to the second division of our subject: namely the methods which have been devised for guarding against the attacks of these diseases -

Advantage has been taken of the fact before-mentioned. This was first done with reference to variola. The process of inoculation was the first step made in the right direction. In this process the disease is engrafted on to a healthy body

& allowed to run its course in the natural way. This practice, although not unattended with danger was still in vogue until the time of Jenner who introduced what is now so well & so favorably known, the system of vaccination. Its history & the benefits which it has conferred upon the human race are well known. But inoculation is not confined to variola alone: it has also been tried in the other diseases of this class.

In the others it is not to be depended upon as in variola: yet time may teach us how to protect the community from the ravages of the *Exanthemata* as it already has done with reference to variola.

The fact that diseases of this class rarely occur more than once to the same individual is well known to the public as well as to the profession: and we sometimes hear a mother say that she is willing to expose her child while young to some of these complaints rather than to live in constant dread of their attack at a more advanced period of life. It is a fact that some of these diseases are much more

fatal when they attack adults than when they attack children, hence there may be some philosophy in the reasoning of the mother -

Of the treatment which is peculiarly applicable to these diseases - When their attack is apprehended it seems to me that we should direct particular attention to the general health so that if our patient must go through a course of disease, the shall do through it under as favorable circumstances as possible. Exposure should be avoided, the body should be warmly clad: good food & of sufficient quantity should be allowed & if there be any disorder of the general system it should be removed by the proper remedies -

When the initiatory fever has commenced it is often advisable to give an emetic or an emetico-cathartic, which shall remove all irritating substances from the alimentary canal. Then perfect cleanliness should be insisted upon. After a warm bath is of infinite service in removing the dry & harsh skin so constant an attendant upon fever. We are then to watch for symptoms & treat them

as they make their appearance. The common cooling diaphoretics: Spts Nit. Aeth. Spts Nuxvomica, or the effluvia draught are all appropriate at this stage of the disease. Attention must be paid to the ventilation of the sick room: pure air in sufficient quantities must be admitted in order that the poisonous exhalations from the patient may properly diluted & all offensive odors must be removed or corrected. In mild cases these means may be sufficient; but sometimes these diseases assume a malignant form & the shock to the nervous system is so great as to break down the physical strength at once! In these cases we must remember that the patient is about to go through a course of rapidly exhausting disease & that we are to fit him if possible to contend with it. Tonics & Stimulants may be given here from the beginning! Quinine in large doses: wine: beef tea with Carb. Am.

When the eruption has made its appearance the fever generally subsides: then we need only to care for the regimen of our patient: to prevent undue exposure to cold or heat.

If the eruption be profuse, causing great irritation

we must guard against this if possible by the exhibition of narcotics - opium, hyoscyamus &c. If the eruption be so profuse as to cause a debilitating discharge, we must support the strength as in the malignant cases before mentioned.

It is sometimes the custom, when the eruption is delayed after the usual time, to force it out if possible by warm drinks &c. This is never necessary; we may trust this process to nature: for we believe it be her method of cure: but if we find any retrocession of the eruption or any complication of internal disease we may use such methods to bring it back to its proper seat the skin. In such cases the mustard foot bath may be used or sinapisms applied externally -

The treatment of the Exanthemata resolves itself into this formula: obey the laws of hygiene: watch for symptoms of approaching danger & attempt to ward it off: but trust the greater part of the cure to nature, "which heals all our diseases"

After the eruption has passed off the same care for the regimen of the patient is requisite as during the treatment of the disease. For sudden exposure to cold or damp is apt to bring on some of the

sequelae of these diseases which we have already mentioned. Too much care cannot be taken under these circumstances. These dangers are not passed with apparent return to health: but they sometimes come on after the lapse of weeks & they sometimes cause as much trouble as the original disease. E.E.D.

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There are two muscles, the pectoralis major and the latissimus dorsi, acting at the glenoid joint of the humerus, that are well known and described as twisted or crossed muscles. That is the fibres of their extreme limits of origin have their relations to each other exactly reversed at their insertion, when the arm hangs in the ordinary position of rest. And only these two muscles out of the eleven, which act more or less exclusively over the shoulder joint have been described as possessing the mechanism of a twist or a crossing of their fibres.

It is here proposed to show: "That in the very extensive motions of the arm there are some advantages arising from this mechanism, and "that masses of muscular fibre in the same joint, other than those commonly described as twisted, do also possess these advantages from an analogous arrangement.

The more evident mechanical results of this twist or crossing may first be considered, as their sources & bearings in the vital economy will be more apparent afterwards. Now it will only be necessary to consider this mechanism in two positions of the arm, the one that of rest, the other in that position of action the most opposed to the first: since all intermediate positions must share to a greater or less degree the conditions of these two. But the motions of the arm, due to its shallow articulation, loose capsule, ligament, and to the radiating mass of muscles that bring it into play, occupies very nearly the whole of a hemisphere looking forward and sideways. The two positions of the arm that we have to consider are therefore at opposite sides of the hemisphere of motion, but in the same plane; that is, hanging pendant and extended in elevation. Now when the arm hangs down, and the two muscles already mentioned are in a state of comparative rest, their insertions upon the humerus are parallel or nearly so with their origins, in the one case along the sternum, in the other along the spine.

But the centers of their lines of insertion and of origin are in the same transverse plane in the Pectoralis major, while there is a great difference between these transverse planes in the

Latissimus dorsi. We are led therefore to consider the mechanism of twisted muscles in two points of view: first, when in the same transverse plane, second, when out of it to a greater or less degree. Further there are three arrangements of the muscular fibres possible. For from the rotation of the arm about one point, they may become antitwisted when the arm is lifted, or become yet more completely twisted, to form in short a coil of muscular strangulation. Now they are arranged so as to become uncrossed, rather than strangulated, and the disadvantage of the latter arrangement can scarcely be doubted. It will not be necessary therefore to dwell upon any comparison between these two. In the other hand these muscles must be either twisted when the arm is down, or else by being direct and uncrossed in that position, become so when the arm is lifted. Since the former of these two methods obtains we may presume it has advantages over the latter which though not very obvious at first may by a comparison of each arrangement in the two positions of the arm become evident. We have then to compare a twisted with an antitwisted or direct muscle when in the same transverse plane and when in transverse planes at varying distances of elevation, as also the action of these muscles when the arm is elevated and when hanging down.

It is evident that when the centers of the lines of insertion and of origin are in the same transverse plane, a twisted muscle will have the fibres of its two edges longer than a direct or antitwisted muscle similarly situated: and also, that these fibres will be longer as the line of insertion is longer, in they go, not directly to the nearest point of that line, but to its farther point, from above downwards, and from below upwards. We have therefore a gain by twisted muscles, when their origins and insertions are in the same transverse plane, of increased length of muscular fibre. This applies to the Pectoralis major rather than to the Latissimus dorsi. But when the centers of the lines of insertion and of

origin are not in the same transverse plane, as is the case in the latter muscle, two facts will be evident on a little consideration. First that while the fibres of inferior origin are in a direct muscle inordinately stretched by the elevation of the arm and an extreme variation between the length of its fibres produced they are much less extended in a twisted muscle by a similar elevation. And that, owing to this and to the slightly increased extension of the fibres of superior origin which are but little extended in a direct muscle the two extremes are reduced and a greater uniformity of length in the muscular fibres produced by the presence of a twist when the arm is down. The general principle will further be evident, that a twisted muscle will always have a greater inequality of length between the fibres of its edges than a direct muscle similarly situated, and that this inequality is increased as the distance between their transverse planes increases. Now by the deviation of the arm the distance between these planes is increased. We can therefore see that on this principle also there is a greater equality of length, when a twist when the arm is down, instead of when it is elevated, as much be the case were the muscle not twisted in the ordinary position of rest. It the expense then of a slight inequality between the fibres of the muscle when the arm is down, do we have a gain of greater equality in them when the arm is exerted at the disadvantage full length, and we may add the former is a position of ease the latter one of disadvantageous exertion. It is at the point of least leverage then, that this gain, if it be such, of comparative equality occurs.

We have now to apply these facts and principles to two positions of the muscles already mentioned; that of rest or while the arm is down, and that of exact opposition to this or extreme elevation of the arm. It has been shown that when the lines of origin and of insertion are in the same transverse plane, a twisted muscle will have the fibres of each side longer than those of an untwisted muscle in the same relation of position and that this length is increased as the line of insertion is extended. The very evident law of relation between length of muscular fibre and velocity

shows that there is here a gain in speed of the motions of the joint by the form of these methods of arrangement. It has also been seen that by the mechanism of a twist when the arm is down there is a greatly reduced extension of the portion of the muscle and a lesser inequality between the various parts especially at the place of least leverage in operation. Hence, there is a more uniform strain of the tissue there is less friction between the contracting fibres, which has been considered the principle cause of muscular heat, (Kroeman holds Ex. Anat. iii.) and consequently there is less fatigue. It also seems, though we are ignorant of the nature of nervous stimulus, as though definite amounts of nervous influence should produce definite amounts of contraction, and if this is so then where the contracted fibres are various in length there must either be a very graduated flow of stimulus to the different parts of the muscle or a surplus and waste. But the very act of graduating the flow whether consciously or not, is an additional nervous act. In either case uniformity of the contracting fibre appears economic. The gains by this twisted arrangement of the muscular fibres, when the arm is at rest, are, 'increased length and velocity; uniformity of length, of strain, and of action, especially at the moment of least leverage, production less friction heat and fatigue and a probable economy of nervous stimulus.

In the human subject however, where the insertions of these two muscles are only an inch or two in length, the advantages of this mechanism of a twist may seem more speculative than real. But in the human subject the action of raising or suspending the whole body by the arms is only an occasional one, and soon followed by fatigue. Yet if our reasoning has been so far correct, it is to these very motions that the mechanism we have been considering is especially adapted, and we might expect to find its practical illustration in those animals that ^{constantly} swing and climb by the arms, as a rod, in the monkeys. Now we find the *Pectoralis major* of the apes described — Carrier, "Leçons d'Anat. Comp." 7.1, p 292-3 — as having

its clavicular portion inserted far down the arm, while the lower sternal and costal fibres are inserted
up to the head of the bone. The more recent detailed accounts of the anatomy of the
orang, the chimpanzee, and the gorilla—Ducroix, "Archives du Museum d'Histoire Nat^{lle}", 1717;
Wilder, "Boston Journ. Nat. Hist." Vol. 17. — repeat similar statements. This range of insertion
must strike every one as directly applying the principles already suggested. For by inserting
the clavicular portion quite down the arm and the inferior costal fibres near to the joint
the whole muscular mass is lengthened, its fibres are increased when the arm is extended and
made more nearly uniform when at the moment of greatest exertion. This is more strikingly
illustrated in those apes in which the central direct fibres of muscular tissue are wholly wanting,
the Pectoralis major consisting of the distinct and separated costal and clavicular portions.

Indeed this mechanism is shown in all those cases where great exertion of the arm occurs
when it is in an extended position, as in the mole where the insertion of the Pectoralis major
is along the entire length of the humerus. In all these cases also the fibres are so
arranged as to be direct at the moment of greatest exertion. The practical nature
of the advantages we have been considering is therefore made highly probable.

It has been remarked that the twisted muscles in some animals found separ-
ated into distinct fascicles or bundles of contractile tissue, which however maintain by their mutual
arrangement the mechanism and advantages of a twist. We are thus led to inquire whether
the separate muscles of the shoulder-joint may not to some degree possess an analogous relation
in their arrangement and share in its advantages. That is, whether those portions of
muscular fibre which arise as distinct muscles from above and are inserted below the insertions
arising lower, do so pass by them as to become direct and comparatively uniform when the

arm is elevated. Now it will be found that all these muscles which pass each other toward their insertion upon the arm do so pass as to uncross and become direct when the arm is elevated. They constitute groups of muscles which may be regarded as unities of action. The Teres major in its relation to the Latusimus dorsi illustrates this, as does also more strikingly the Dorso scapularis muscle of the Walla medi Armen-
Lawsee with the same. The scapular portion of the Deltoid by overlapping the Infra spinatus and Teres minor form another group that become uncrossed when the arm is lifted. An anomalous superior Infra spinatus observed during the past winter upon one of the subjects dissected, crossed very completely over the ordinary Infra spinatus to find an insertion down the arm. Upon the anterior side the circumflex portion of the Deltoid and the Pectoralis major form another group of crossing fibres that become direct on their action upon the elevated arm. In some persons muscles that cross each other near their insertion, the Coraco-brachialis and Pectoralis major, are in form an exception to this arrangement and it is superfluous to consider that exception. From the muscle of superior origin, the Coraco-brachialis, passes downwards overlapped by instead of overlapping the muscle of inferior origin the Pectoralis major. But in most location and situation of the arm, the fibres of the Coraco-brachialis from their origin on the coracoid process, are so directed in the axis of the bone, as to be of little or no active service in bringing down the arm: and then will be found to gain a leverage and to become actively useful, only as the arm is brought more and more into the antero-posterior plane of the body. This is confirmed by a glance at the comparative anatomy of this muscle. For in the Walla, where all the other muscles of the shoulder are immensely developed, this one is described

quite rudimentary and narrow, and in the apes generally it becomes merely accessory to other muscles, being inserted either to the Biceps, or to the Triceps as in the Orang. This wide change of function from flexion to extension of itself seems to indicate that the action of this muscle in those positions of the arm most common to this group of animals is but slight, and its general rudimentary condition in them proves this. Its relations to the axillary and brachial arteries in man may suggest a possible use as preserving the vessels from pressure in the elevated position of the arm. This muscle, which in its line of action is comparatively ineffectual during the position of elevation of the arm, is the only one of all the muscles of the shoulder joint that crosses another, without any analogous to that of the superior and inferior fibres of the coraco-brachial muscles.

To sum up: It has been shown, that twisted muscles in so free a joint as that of the shoulder, are mechanically superior to direct muscles, by an increased length of muscular fibre and its consequent speed; and, that by the absolute reduction of the otherwise necessary stretch of a portion of the muscle, together with a slight increase of stretch in another portion there is an equalization of tension and of the muscular contraction at the moment of most disadvantageous action, and that this equalization is probably one of economy. And farther that these specializations are emphasized by the exaggeration of this mechanism in those animals that use the arm largely in the position of elevation. It has also been shown that all these muscles, capable of acting during the elevation of the arm whose tendons of insertion cross, are so arranged as to possess the mechanism and advantages of a twist, and that they constitute three groups that when regarded as contractile entities still

further emphasise the importance and economy of the mechanism we have been considering.

These two points were proposed at the commencement of this thesis.

Synopsis.

I. Propositions of thesis are stated

II. As to the first proposition;

An examination of the mechanism of the two muscles discussed is only necessary in

¹ Two opposed vertical positions, and in

² Two transverse relations.

By comparison of the only three possible arrangements of the muscular fibre,

¹ The mechanical results, and

² The advantages of the splicing mechanism are perceived.

These advantages are best shown by the comparative anatomy of the muscles under consideration.

III. As to the second proposition

There are three groups of muscles that illustrate the same mechanism.

The pectoral muscle is not active in the elevated position of the arm.

IV. Hence the propositions advanced are still held to.

Rheumatism

There are a multitude of painful and distressing diseases by which man kind is doomed to suffer at or almost every period during his existence. Of this class the one most common in this country and with which the physician in practice meets almost daily is, Rheumatism.

Rheumatism is characterized by severe pain in the joints, with redness and swelling. It is an inflammatory affection, but the inflammation is different from that which is the result of other causes, for it is specific in its character and attacks fibrous tissue especially; it also embraces other tissue at the same time, but it is generally conceded that the fibrous tissue is the first to suffer, and then other tissue by contiguous sympathy. All diseases communicable may

in this way becomes affected by rheumatic inflammation; the inflammatory action being spread from the surrounding fibrous texture, is the synovial membranes of joints, and the serous membrane of the heart, the pericardium being most commonly affected which is a fibrous substance.

Therefore, although it has a special tendency to attack fibrous tissue, yet it is not the limit of its action.

Rheumatic inflammation differs from the common form of inflammation also in this important respect, that it has no disposition to terminate in suppuration or pyrexia. It may become so intense as to excite the common form which will mark its course and result accordingly, but simple rheumatic inflammation always, after the irritating cause has been removed ends in resolution. Rheumatism is divided into Acute and Chronic. The first manifest symptoms of the acute

form of this disease are, a sense of chilliness alternating with flushes of heat, a general soreness of the body and pain in the joints. As the disease continues, the pains become less & more unobtrusive with increased frequency; a thin but hard dry tongue coated with a whitish fur, pain in the head, face flushed, constipated bowels, urine scanty and high colored.

As the disease becomes developed, the patient's sufferings are aggravated by the local difficulty which is generally seated about some of the larger joints, and upon examination will be found swollen and red with extreme tenderness to the touch. This is the common feature of acute rheumatism, although these symptoms are not all present in every case of this disease. There may be intense pain of a joint without any perceptible enlargement or redness to indicate the existence of inflammation; and on the

often send the local symptoms away
be well marked distinct the general
febrile reaction taking place, at least
to any considerable degree.

The pain is not permanent in any
particular locality but shifts about
from one part of the body or joint to an-
other which sometimes affords a limited
amount of relief to the patient.

This migratory pain is called metastasis.
A person suffering from rheumatism may
complain of a severe pain in one of the
knee joints which continues for a time,
and then it will suddenly disappear
perhaps, and occupy the other, or it may
continue to migrate from one to another
until nearly every ~~every~~ joint in
the body is affected at the same time with
undiminished pain; it is not commonly
however confined to some of the larger
joints, the extremities, in the numerous
cases and ^{or} wrists; not as frequent in the

shoulder or hip joints. At times it leaps
to some vital organ endangering the life
of the patient in proportion to the
importance of the organ affected; its
tendency to attack the heart is increased
if the patient is very young, fainting
if there is much irritability of that organ
existing at the time. Metastasis is supposed
to be owing to morbid matter contained
in the blood, generally regarded as consisting
of lactic acid, which acts with great energy
upon fibrous tissue, as has been experimen-
tally demonstrated by Dr Robert Richardson
upon inferior animals.

Pneumonic fever presents some
features contrary to those which are seen
in other forms of inflammatory diseases, for
it never takes the typhoid character, and
these prominent symptoms, that are common
in continued diseases, as coma, as con-
vulsions vomiting disordered condition
of the bowels or sordes about the mouth

however violent its action is; when death does occur it is almost always due to cardiac inflammation. The fever appears to be specifically connected with this kind of inflammation; being, however, of the peculiar character of the fever contained in the blood.

Acute rheumatism is considered by some authors in two distinct forms. As fibrous and suppurative. In the first the full intensity of the disease is manifest, both locally and constitutionally; it attacks those parts in the immediate vicinity of the joints, with more or less pain tenderness and swelling which increases as the disease advances, frequently in surface streaked with red lines.

In this form the patients, excepting an ~~exception~~ ^{even} as the joint symptoms are active in a high degree, and the strength of the system is not much affected by the profuse perspiration and continual

flair, for the direction of the disease
the great tendency of the inflammation to
attack the heart renders it dangerous to the
life of the patient. The swelling of the
joints affected, depends partly upon the
turgescence of the blood vessels and partly upon
the effusion of fluid into the cellular
tissue.

The synovial form is generally mild
in its nature and is not of so long duration.

When the swelling of the joints appears
the constitutional symptoms partially
subside; the tongue is less furred and the
pulses become soft.

The fluid is directly in the joint
as it appears, and the swelling is produced
by the effusion of fluid into the cavity,
so that fluctuation is sometimes
perceptible upon examination of the
joint.

Acute rheumatism is most apt
to occur between the ages of fifteen

and forty years, seldom troubling the aged or very young; but cases are recorded of children at two or ^{three} years of age being attacked by it, generally affecting the heart, and with almost always with fatal results.

The causes which produce this disease are many. The most common of which are exposure to cold and moisture, atmospheric vicissitudes during the spring and winter months, particularly among the poorer classes whose circumstances cannot furnish the necessary protection from the raw damp atmosphere to which they are exposed. The cold acts upon the surface closing up the pores of the skin and the superfluous matter is retained, not to be conveyed by the circulatory ^{organs} over the system, acting as the purifying agent. It is said by some authors that unless this predisposition exist exposure is not followed by rheumatic

inflammation, but if it is found in the
blood exposure is not necessary in order to
excite the disease. Mercury is said to be
a powerful modifying agent by rendering
the system more susceptible to the action
of cold, violent exercise and rapid perspira-
tion followed by exposure to cold is the
true exciting cause of Acute Rheumatism.

This disease is not considered dangerous
to the life of the patient in its
severe character as long as it is confined
to external parts, or to those organs whose
whose functions life does not immediately
depend and generally ^{speedy and} complete cure can
be obtained by appropriate treatment.
When it is transferred to some vital
organ, as the Brain heart and Lungs it
becomes extremely dangerous and often
fatal. The duration of the disease is
variable and depends partly upon treatment
and partly upon the Constitutional

fact of this, it is generally supposed not
to be the case. When the
disease is about terminating there is
a general effluvia, the pain is less
severe and the pulse becomes soft and less
frequent, a pale sediment settles the
place of the white that deposit in the
urine. Sometimes a moderate diarrhoea set-
ting in and the urine is gradually expelled
from the system.

It now becomes the province of
the physician, after considering the
nature of the disease to adopt the most
proper place of treatment to bring about
a speedy convalescence. There is a great
diversity of opinion among physicians as
to the best remedy to be used in the
treatment of albuminuria, but at the
present time no specific has been
discovered. Quinine, opium, calomel
continual cathartics and continuous

...remedies have been employed
sometimes with success, and other times
failing.

If the patient is young, strong,
and with a high inflammatory fever,
severe pain and a full hard pulse, a
free source of blood taken from the
arm at the first stage of the disease
is proper. The object is to alter the
fervor, mitigate pain, relieve congestion and
moderate the intensity of all the symptoms
to a gentler and lower degree. This remedy is
best for the first stage of the disease, and
to be followed by the next best, which is
the use of the opium. The former will
relieve, mitigate, and remove the
indicated for the purpose of removing
the accumulation of blood from the
system, and in a constant stream of
imitation. When the patient is
in the most marked effect in
the disease, given in doses of

to produce a free evacuation of the bowels; after the bowels have been freely acted upon by some purgative with which Calomel is combined. Calomel and Jalap, given in large doses is recommended as a great purgative at the commencement of the disease.

Marked improvement in some cases is manifest by continuing to purge the patient with Calomel for three or four days until the evacuations become some of their natural color.

It is administered in doses from five to twenty grains at night and followed by a draught of salts and renewed in the morning. Persons of a weak habit of body cannot bear this seducing plan of treatment; therefore when the constitutional effect of Calomel is desired it may be combined with Opium in small doses, followed at times with a mild purgative. Opium is an indispensable drug in this as in almost all other painful diseases and should be

given in full doses repeated at short intervals until the pain and irritation are allayed to such a degree that the patient can obtain rest. Calomel is the most efficacious remedy, in some cases, and is more successful as the disease assumes the character of jaund; it may be given in doses of twenty drops every four hours until it affects the bowels, and then it should be discontinued. Alkaline preparations have been employed with disadvantage in this affection for the purpose of neutralizing the acid piron contained in the system. The bicarbonate of potash given in doses from half a drachm to two scruples in solution every two or three hours until the articular inflammation is subdued. Some prefer the acetate, half an ounce to be used in twenty four hours, largely diluted ^{with} aromatic water.

The patient should be required to keep perfectly quiet both body and mind, and

to be continued until the inflammatory
symptoms are removed; the symptoms of
depression induce us to support the
system, bark may then be given, and a
little wine. If necessary
wines are recommended, administrations in order
to obtain that relief is often obtained from
small repeated doses ^{the pain} of alcohol in the
few cases on which. For this purpose the parts
may be wrapped in flannel and frequently
soaked in a hot alkaline bath; or
fomentation of alkaline and opiate
solution. If the symptoms of cardiac
affection appear in the course of the disease
such as violent pain and irregular
action of the heart; precordial pain,
small feeble and intermittent pulse
cold sweats and difficult respiration,
opium and the vapor bath are said to
give great relief to the patients
sufferings; the opium to be given in
sufficient doses to quiet the pain, and

the influence to be no longer
the influence of the mind. But the
influence of the mind is not the
influence of the mind. The influence
of the mind is the cause of the
influence of the mind. The influence
of the mind may be removed, and the
influence of the mind may be removed.
The influence of the mind may be removed.

Wm. B. Smith.

Aneurysm.

An aneurysm is a pulsating tumor supplied by blood, and communicating with an artery, detached either in part, or completely, from its integrity.

The classification of aneurysmal tumors, has been the subject of long and spirited discussion, and many of the divisions and subdivisions of different writers, which were of but little practical importance, have served to embarrass the student more than to advance the cause of science.

It is now generally admitted, that the division of aneurysm into true and false, is important, and should therefore be retained. The same is true of spontaneous and traumatic. The term true, is applied to that form of aneurysm in which one or more of the coats of the artery form the covering of the tumor.

In false aneurysm, or the false aneurysm, in which the coats of the artery have been ruptured, and the blood being forced out, forms a tumor, of which the surrounding cellular tissue is the covering.

Each of these grand divisions comprises several varieties, founded principally upon the form and volume of

the tumor. Thus an aneurism is said to be circumscribed, when the artery is enlarged only in a small part of its circumference, and has a distinct border.

The diffused aneurism, consists of an enlargement of the whole circumference of the artery, and has no defined border, but fades off gradually into the healthy artery. This form of aneurism is by some writers called tubular, and occurs most frequently in the aorta and the large arteries given off directly from it, especially the innominate, subclavian and carotid.

The false aneurism, is also subject to the same division. There is another form of aneurism called dissecting, which is formed after the coats of the artery become diseased, by a rupture of the internal, and a separation of the lamina of the middle coat; the blood then flows along dissecting up the walls of the artery. This form is confined principally to the aorta, and is always fatal.

The vessels which are most liable to spontaneous aneurism, are first, the aorta, and the other arteries in the following order, popliteal, femoral, crural, carotid, subclavian, innominate, axillary and external iliac. Traumatic aneurism, is more common in

those arteries which are most exposed to external
injury.

The predisposing causes of spontaneous
aneurism given by different authors, are many and
various; but the most constant, and therefore
the most important, is a diseased condition of the
arterial tissues, usually presenting itself in the
form of earthy and atheromatous deposit.

Age, sex, and climate, have also been included
among the predisposing causes. How far any
one of these causes is capable of producing aneurism,
is a matter of conjecture, but that the disease does
occur oftener in males than in females, that it is
rare prior to the age of thirty, and that in
certain localities spontaneous aneurism seldom
occurs, is an established fact.

Symptoms.

In spontaneous aneurism, which usually depends
upon the rupture of one or more of the coats of
the artery, the patient may first be apprised of
the disease by a sharp pain, resembling an electrical
shock, or he feels as if something had suddenly



given way, and on examination of the part, the
disease is found to be a pulsating tumor. When the
disease comes on in this manner, it usually occurs while
the patient is engaged in some severe bodily exertion.
But in the majority of cases, this is not the manner in
which the disease makes its appearance. It is not
generally distinctly marked in the beginning, and
the patient is not conscious of the fact of its
existence, until the disease has already made serious
progress: this is especially apt to be true if the tumor
consists of a dilated condition of all the arterial
coats. In aneurysm's incision, the opposite of this
is true, the characteristic symptoms make their
appearance immediately after the receipt of the
injury. If the tumor is external, we derive certain
symptoms from it, which will generally enable us
to determine its peculiar character. Pulsation is the
most obvious and constant one. The tumor when
pressure is found to receive an impulse synchronous
with the contraction of the left ventricle of the heart.
If the tumor is a recent aneurysm, it is soft and elastic,
and may be emptied of its blood by steady pressure.

Upon opening the sac to the tumor, a peculiar sound
may be heard, generally of a sawing, rasping, or
whizzing kind. It may be heard several inches
from the tumor. The sound is supposed to be
caused by the blood rushing into the sac, and is
variously modified according to the shape and
size of the tumor. The pain attendant upon the
disease, is constant, but varies in degree with
the size and position of the tumor. It is generally
dull, aching, and throbbing, and is more
about to form. The immediate causes of the
pain are inflammation of the sac, and, as the
tumor increases in size, pressure upon the surrounding
structures. The pressure of the sac often causes numb-
ness, and a sense of aching and weariness of the
limb below the tumor. As the tumor enlarges, less
blood is conveyed to the limb below, and we have
a consequent diminution of temperature, but this will
soon disappear, as the collateral circulation becomes
sufficient to supply the limb with its accustomed
amount of blood. As scurvy of the thoracic vessels,
innominate, and carotid arteries, is always,

alteration in the position of the heart, and, palpitation of the heart; of the larger arteries of the abdomen and pelvis, by interfering with the return of blood in the vena cava, may occasion serious functional disturbance resulting in ascites and anasarca.

Diagnosis.

The symptoms of aneurism are described by most authors as being clear and distinct, yet errors of diagnosis have occurred even with the most skillful and experienced surgeons. The affection with which aneurism is most liable to be confounded, are chronic abscess, glandular tumors, and encysted growths. In aneurism from the beginning is shown, either in the course of some large artery, is felt and elastic, and is a pulsating tumor from the moment of its development, in contrast to the aneurism, is a hard swelling from the first, and goes through the different stages of inflammation, and becomes soft only after has been formed, and is devoid of pulsation. Pulsation may be simulated by a tumor lying directly over the trunk of an artery. We can discriminate between this and an aneurism by the

Character of the pulsation. An aneurism enlarges in all directions; in aneurism, a sudden swelling in every direction which if grasped by the hand will be perceptible. While the other tumor will be simply raised from its position without any enlargement in circumference.

Glandular swellings are most apt to appear in the neck axilla and groin, in children and young persons affected with strumous diathesis. On the contrary aneurism is most apt to appear in the popliteal, femoral and carotid arteries, and after the middle period of life.

Encephaloid growths are generally attended with that peculiar state of the system known as the cancerous cachexia, which is always absent in aneurism.

The size of an aneurism may be diminished by pressure upon the cardiac side and increased by pressure upon the distal neither of these symptoms would be

present in an abscess, or solid tumor

The peculiar whizzing sound, which is generally present, in aneurism, is said never to be in other tumors. Where there is doubt as to the character of the tumor, after the most careful examination, the only resource, is to insert a delicate exploring needle which will at once determine the diagnosis.

The effects which an aneurism will produce, upon the surrounding parts, will depend upon its size, and position. If in the neck, we may ^{have} embarrassment of deglutition, or more commonly, interference with the functions of the phrenic, glosso-pharyngeal and par vagum nerves. If in the chest dyspnoea, resulting in defective oxygenization of the blood. In general we may say, that aneurismal tumors, by their continued pressure upon surrounding parts, will destroy what ever tissue comes within their reach. Thus the femoral

has been found completely cut through. the vertebrae, with their bodies almost entirely removed, the sternum perforated, the ribs wasted and the clavicle divided,

Although aneurism most commonly terminates fatally, without the intervention of art, yet it is occasionally true, that a spontaneous cure is the result. This is accomplished by the formation of a clot within the aneurismal sac, which prevents the influx of blood, and ultimately converts the sac into a solid tumor.

Treatment

To Dr. Hunter's treatment is alluded to, and it is generally acknowledged that he was the first to apply the ligature for the cure of aneurism prior to his day, yet, the operation was performed immediately above the sac, where the artery was diseased, and in most cases terminated fatally, so that Dr. Hunter, the first of Hunter's advice, that in such cases

amputation should be performed in the
first instance. The Hunterian operation,
which is the one now generally advised;
consists in selecting a healthy portion of
the artery, at some distance from the tumor,
on the cardiac side, great care being taken
in exposing the artery, not to separate it
from the sheath farther than necessary.
The ligature is then applied, and drawn
sufficiently tight to cut through the in-
ternal coat, one end of the ligature cut
off, and the other brought out of the wound
at the nearest point. The lips of the wound
should then be brought together and secured
by adhesive straps. The pulsation in the
sac will usually cease immediately
after the application of the ligature.
After the operation, the patient should be
placed in bed, with the limb in an
easy and relaxed position, and if there
be a diminution of temperature, it should
be enveloped for some time in wadding.

All cold stimulents should be avoided;
a full anodyne administered immediately
to control the action of the heart, and
light diet and cooling drinks observed.
The bowels should not be opened for
several days, and then with the mildest
laxatives.

Harsh's operation, or
ligation of the artery at the distal side
of the tumor, has been performed in several
instances of aneurism of the carotid artery
with success, but is not advised at the
present time only in aneurism of the
innominata, and the result here, has
for the most part been unfavorable.

Compression upon the artery above the
tumor, was first distinctly proposed
as a remedy in this disease, by Mr. Jones
of England, early in the present century.
His theory was, that compression must
be applied continuously, so as to arrest

the circulation, and produce adhesion of the inner coats of the artery. This treatment was occasionally followed by success, yet it was productive of such excruciating pain that but few patients would submit to it.

In 1843, Dr Bellinghame of Dublin pointed out the true principle upon which compression acts, he proved, that it was not necessary to apply it continuously and firmly as formerly supposed, that the object being simply to reduce the flow of blood, sufficiently to produce clot in the artery is better accomplished by a gentle and intermittent pressure, than by continuous. Of this Dr Ferguson says: So far as our comparatively limited experience in the method of pressure, as followed by the Dublin Surgeons will enable us to form an estimate of its value, it seems, in many respects, if not in all, preferable, to that by deligation of the main artery, and

There seems these great advantages in it, that if it does not act satisfactorily, the Hunterian operation may still be resorted to with as much probability of success as ever, while in its application, none of those formidable dangers are incurred, which are the well known consequences of the application of the ligature.

Digital Compression was first successfully employed by Prof Knight of this institution in a case of popliteal aneurism. It has been successful in cases where mechanical compression had failed, it was productive of intolerable pain, and in no instance on record, has it ever been productive of any bad consequences. It is to aneurism of the extremities, that this method of treatment is principally applicable. Dr Gross records nineteen cases in which digital compression was applied to the femoral artery, for popliteal and femoral aneurism, of which thirteen cases were cured, the period required for the cure of aneurism 6,

This method, is much shorter than by any other known treatment, Thus of the cases mentioned the shortest time was three and a half hours, and the longest, seven days making an average of two days and two thirds,

Another method of treatment, which is, perhaps worthy of notice, is the injection of some of the styptics into the sac. The great obstacle which has thus far prevented the success of this treatment, seems to be the production of inflammation, suppuration and in some instances even gangrene of the sac and surrounding structure. It is suggested, for the French physicians that we use in the method above, a solution of an agent which will produce hæmorrhage without inducing inflammation and thus obtain better results. The following formulae prove this and this injection will rank among the most important ones in the treatment of hæmorrhoids.

L. V. Leary

Rubrola, Morbilli or Measles.

The most common technical term of this inflammatory eruptive fever is Rubrola or Morbilli. There is no characteristic distinction with American, French or English physicians between the names both used by them synonymously denoting one and the same disease; but German physicians regard them as names denoting two different diseases; they apply the name Morbilli to well authenticated cases of measles while the term Rubrola is used by them to designate an entirely different malady called spurious measles. This disease was described by Dr Willan under the name of Roseola.

Until a late period in the history of medicine the diagnosis between Scarlatina, Rubrola and Variola was not well understood and we are indebted to the study and investigation of modern physicians for the distinctive characteristics between the eruptive fevers. Measles may prevail epidemically at any season of the year, it is most prevalent however during.

the winter and spring months. Neither is it confined to any particular class or age of persons. Physicians are more commonly called upon to treat this disease in children from the fact, that they are equally liable to its contagious and epidemic influences, but after having been once affected with it, its prophylactic power generally renders the system safe from a second attack as do most other specific diseases, a regular form of measles does not usually occur but once in the same individual, there are instances upon record of the disease affecting the same person more than once. I think that the prophylactic influence of this disease renders the system more secure against a second attack than does Scarlatina or even Small Pox. As in Variola & also in this disease some persons have the power of resisting the contagious influences of measles they being often exposed but do not become affected with it. This has been noticed in the same family a portion of its members has had well marked cases of measles, while some others of

the same family escaped with impunity. It is said that children are sometimes born with this disease. the mother at the time of her confinement well; she having before been affected with it. Also that the mother and child may be affected with it simultaneously the child being in utero. Measles is said to be capable of being produced by inoculation, though with much less readiness and uncertainty than Small Pox. There is no advantage by this manner of introducing it into the system as it is not rendered milder or less dangerous. A peculiar circumstance connected with the contagion of Measles is that if the patient has been affected a sufficient length of time with the disease and then he be inoculated for Variola its influences upon the system will be stopped until the fever of the first has finished its course, after which time the virus of the second will take possession of the system; this is probably owing to a law of Nature viz. two diseases as a general rule do not run their at the same time.



Measles like other eruptive contagious diseases has its stage of incubation, its introductory fever, and its particular kind of eruption. In the system of Nosology this disease has been divided into three classes, viz. Rubiola Vulgaris Rubiola Sine Catarrho and Rubiola Maligna.

Time of Incubation.

The number of days which elapses between the introduction of a morbidic poison or principal into the system and the evasion of the disease itself is from ten to sixteen days.

Introductory Fever.

This stage of measles begins with lassitude chilliness and shivering succeeded by heat, thirst, anxiety, pain in the head and back; The mucous membranes of the air passages are usually attended with more or less inflammation consequently we have sneezing also a copious defluxion from the Lacrymal glands, and from the nasal cavities. The throat is affected; the fauces are red, and there



is usually present a dry, hoarse cough-

Eruptive Stage.

On the fourth day of the disease we have a determination of acrid to the surface of the body showing itself in red spots; in children of very delicate skins it may be seen on the third day - it may also be delayed until the fifth in those who have a very thick, brown skin; this unlike Variola does not produce suppuration, unless a few miliary vesicles mix with it which is not usually the case, but the disappearance of the eruption is followed by desquamation of the cuticle, the eruption first makes its appearance upon the face, neck, upper extremities, and then reaching the body and so travelling down until it covers all parts of the patient, usually from two to three days, in this particular it assimilates Small Pox; it fades away in the same order in which it presents itself; after it is fully out, it remains upon the face for about three days, then begins to fade away so that the whole time occupied by the eruption is six or seven days.

it becomes of a dark or brownish color as it declines. The spots are small distinct from each other leaving a portion of the cuticle unimpregnated with the eruption; where they make their appearance they are circular presenting something of the ordinary appearance of flea-bites, in a short time they coalesce forming places of an irregular figure assimilative to a semicircle, easily distinguished from scarlatina by their being slightly raised especially on the face, so as to give a sensation of inequality to the fingers if passed over the surface. The eruption may also appear upon the mucous membranes lining the mouth and throat and it is said to afford to us the best place for forming our diagnosis as to the character of the disease. In the African Race, I will here notice two important distinctions between Rubola and Small Pox in regard to the effect of the eruption of the two diseases upon the system. 1st The constitutional symptoms or fever is not in this as in Small Pox, checked or even lessened at the time of the appearance of the eruption. Secondly the severity

of the disease does not depend upon the amount of the eruption, as does it in small Pox; this may be accounted for in variola from the fact that we have ulceration and supperation of a large portion of the integument covering the body, which is very freely supplied with nervous fibres of common sensation, consequently producing great nervous prostration similar to the effects observed in extensive burns. There being no supperation in measles the eruption does not thus effect the system; but in some of its most aggravated forms the eruption may be, and often is of a dark color appearing late and only partially covering the body, it being of a very irregular form.

Complications.

There are various complications sometimes connected with or following measles which are to be more dreaded than the special disease and they should be carefully watched for by the practitioner and symptoms treated as they present themselves. We may have as complications

Laryngitis which a disease bearing some resemblance to croup, it may however attack persons of advanced life while croup is usually confined to children, Bronchitis or inflammation of the lining membrane of the bronchial tubes the capillary bronchitis, Pleuritis or inflammation of the pleura, Pneumonia or inflammation of the parenchyma of the lungs. Also in summer we may have Dysentery which usually proves fatal. It is not an uncommon thing in children for Diarrhea to supervene owing to the change state of the of the mucous membranes which line the nasal cavities the Trachea and Bronchial tubes. We may have copious hemorrhagic discharges presenting themselves in the form of Epistaxis and in females we sometimes have uterine hemorrhage. Should any of these be present they must be treated as idiopathic affections. There are sometimes peculiarities in the manner in which the disease makes its attack, The eruption may present itself before any appearance of Constitutional disease. In other persons

we may have Catarrhal symptoms for several days preceding the eruption. The rash may also appear without Catarrhal symptoms or but very little fever. Nosolignetti have described a disease styled Rubola sine Catarrho or French Measles. In this form of the affection we have slight fever but no signs of Catarrhal symptoms, but the prophylactic power of this form of the disease is considered by most physicians as wholly nugatory; affording no protection against the recurrence of the malady, but rather rendering the system more susceptible to a regular form of well defined measles.

Rubola Maligna.

This form of measles is not very frequent; but when present it is more liable to prove fatal than the other forms, because the fever assumes a low typhoid state, the fever and Catarrh are more severe, The eruption earlier and all of the concomitant symptoms are much aggravated. Inflammation of the

texture composing the lungs and abdominal viscera often prove fatal in this form of the disease. The respirations and the heart action are much accelerated. The pulse is frequent, soft and compressible. The eruption differs both in regularity and color, sometimes making its appearance and then soon disappearing without relieving the but rather increasing typhoid prostration. The eruption on different parts of the body presents various appearances, it being at one point red, at another dark, livid and interspersed with echymosis and petechiae. We usually have dark offensive stools, also tenderness over the epigastric and abdominal regions. The brain becomes affected through sympathy, consequently there is present delirium with coma and in children we frequently have convulsions. All of the vital powers are much depressed.

Sequel of Measles.
These are often more detrimental than

the immediate disease on account of its leaving the system so susceptible to local inflammation, and if exposed to cold during desquamation and Convalescence, disease may be produced in the lymphatic system. It sometimes happens that a person to all appearance has fully convalesced from measles still Pulmonary Consumption and Ecthic fever may afterward present themselves and thus cause the vital thread of life to be severed. Another bad consequence of Measles is that the bowels may be left in a debilitated state and Chronic Diarrhea ensue. In Scrofulous children there is frequently following this disease an affection of the lymphatic ganglions producing troublesome inflammation of the glands of the neck and other parts of the lymphatic system.

Diagnosis.

This is not usually very difficult but we should be guarded about giving a name to the disease before its nature is fully

ascertained, but should wait until the pathognomonic symptoms more definitely delineate the disease, for should we be so unfortunately as to give a wrong diagnosis our mistake might be attributed to want of proper medical knowledge concerning the affection which would prejudice the minds of community in regard to the ability of the attendant especially if a young practitioner, in most cases however it will be safe to announce the disease providing it is attended with all the premonitory symptoms which I have before mentioned, especially if there is measles in the vicinity.

Prognosis.

In uncomplicated cases of measles it is favorable. The chief sources of danger are the complications which sometimes attend the disease, Also the character of the epidemic and the type of the prevailing fever. The prognosis is unfavorable when the eruption makes its appearance before the third day when it

Suddenly disappears, when the skin presents a dark leaden hue, Petechiae, Echy-mosis or Considerable dyspnea are also unfavorable symptoms. When these symptoms are present we usually have a Typhoid state of the system and if of a Scrofulous diathesis we may have Ulceration or even gangrene. Weather also has much influence upon the severity of this affection wet seasons being most unfavorable.

Morbid Anatomy.

The morbid appearances in those who have died of this disease has usually been confined to the Lungs and Intestines. The lungs show marks of inflammation and at times a tendency to gangrene. Should the patient die in the eruptive stage of the disease, the Trachea and Bronchial Tubes, as in Small Pox will frequently be found covered with it, and this may account for the increased cough during the eruptive stage.

^{ny} Treatment.

In mild uncomplicated cases of measles the physician should allow the to run their course without much medical interference it will be his duty however to keep the secretions in a healthy condition, and the patients in a cool well ventilated room, on spare demulcent diet, Should the bowels be constipated it will be highly proper to obviate this by administering laxatives such as the Neutral Salts, and if necessary Enollient clysters. Venesection should not be used indiscriminately in this affection, but with great caution, I should not doubt the propriety of this potent remedy in a case accompanied with a full strong pulse, Severe pain in the head and face, Difficulty of breathing, excessive coughing and other symptoms denoting inflammation of the lungs, I would usually proportion the amount of general bleeding, to the arterial excitement, and should not the

other symptoms be sufficiently relieved
the general bleeding may be followed by local
bleeding; this generally the best way of taking
blood from very young children. The application
of a blister is of great efficacy in removing
local inflammation, and should be used
if called for. In weak & scrofulous children
they cause troublesome sores and in some epide-
mics have a tendency to produce gangrene
in such cases they should not be used, at
times the inconvenience apprehended
by blisters may be prevented by interposing
some substance between the plaster and
skin, or the blister may be removed after
having remained upon the part for two
or three hours, then dress the surface with a
soft-unirritating poultice. In short the
inflammation proceeding, accompany-
ing or following measles should be treated
on general principles, regardless of the
exanthemata

Should there be great febrile excitement,
thirst and continued restlessness.

Ipecacuanha, or small nauseating doses of
Antimony continued with some refrigerant
medicine as Nitre may be given every three
or four hours. If the cough is irritating ~~or~~
and very troublesome it will be advisable to
give some pectoral, those of a mucilaginous
nature are to be preferred, as they will best shield
the rawness and soreness of the throat which
often this accompanies the disease.

At the same time the patient may use
Barley water, Mucilage Gum Acacia or
Decoct. Kaldi Compositum slightly acidulated
with Acetic Acid. We should be cautious about
using Opium in this as in other inflammatory
diseases, it may do well in some cases
by relieving the irritation and thus reduc-

ing the inflammation. I ~~should~~ think however
it should not be used when there is a high state of febrile
action attended with much difficulty of breathing
until after these symptoms have been relieved by bleeding

after which time it will prove useful in subdu-
ing watchfulness and relieving cough. If the
Secretions be much diminished or of an unhealthy
quality they may be regulated by alterative doses
of Mercurials. Should there be a retrocession of the
Eruption we must treat the Cause. If it is produ-
ced by Cold use the (warm) warm bath give
diaphoretics and Stimulating drinks. If the
Cause should depend upon debility direct some of
the diffusible Stimulants such as Ammonia
Camphor, or Aether combined with Tonics. If
called to a malignant type of Measles it would
require altogether different treatment than
that which I have recommended for the inflam-
matory ^{form} of the disease. This kind requires a general
Tonic mean also internal external stimulants.

Frank B. Cuttle





A General Description of Simple Gun Shot Wounds.

Under the term gun shot wounds are included all injuries produced by missiles discharged from fire-arms, either directly, by immediate contact of the ball, or the scattering of splinters of wood, fragments of stone or any substance which the ball may drive before it.

Gun shot wounds partake of the character essentially of contused and lacerated wounds, and are attended by more or less pain according to the sensibility of the patient, the extent of the injury, and the occupation and position at the time when received. The hemorrhage is usually slight unless the injury is very extensive; there is generally a gush of blood at the moment the wound is received which soon ceases by the contraction of the small vessels which have been divided, and the formation of coagula.

A certain constitutional collapse or shock follows every wound of a serious character almost immediately, but sometimes does not occur for several hours, and is more severe in proportion to the extent of the injury, and the peculiar mental constitution and nervous development of the patient. The continuance of this state of de-

pression should excite suspicion of the dangerous character of the wound, which nothing but the subsidence of the peculiar symptoms should remove, for often the internal injury is far greater than we might at first suppose. Severe collapse sometimes follows very slight injuries, this depends much upon the manner in which the person is engaged at the moment of injury, if in the heat of battle where the nervous excitement is intense, he is suddenly stricken down, the state of depression rapidly follows in proportion to the amount of excitement previous to the injury. The shock is caused in some instances by the extreme fear which some persons have of gunshot wounds, believing that if a ball strikes the head, thorax or abdomen it is therefore necessarily fatal.

During the stage of collapse the patient lies cold and half unconscious, the face is pale and anxious, respiration feeble, pulse small, weak, sometimes fluttering and irregular. The question now presents itself to the surgeon: "Is it best to rouse the patient from this state of collapse?", this must depend upon the nature of the wound, if the ball has penetrated any of the great cavities, it may have wounded many

vessels, which it might be impossible for the surgeon to secure, and now it would seem that collapse is nature's safeguard, for during the depression, the formation of coagula is favored and hemorrhage arrested.

In the treatment of collapse the patient should be carefully watched where the injury has been severe lest the prostration be too great in extent; stimulents should be judiciously used, and warmth by means of blankets to the body, and hot bricks or bottles of warm water placed to the feet. It is not best to arouse the patient too soon, unless the wound be superficial or in position where no large vessels are injured, when the patient should be rallied as soon as possible.

Hemorrhage to any great extent does not generally follow a simple gun shot wound for the blood vessels are so much lacerated and retracted within their sheaths that coagula rapidly form plugging up their extremities. The extent of the hemorrhage depends much upon the calibre of the artery.

Intermediary Hemorrhage may occur when reaction begins, and should be guarded against by having the tourniquet applied if the injury is where it can be used, it should be placed loosely around the limb ready.

to make immediate pressure, should this fail and the bleeding continue, the artery must be cut down upon and both extremities secured.

Secondary Hemorrhage of any amount does not often occur from small vessels. On the separation of the slough there is sometimes slight bleeding, but requires but little attention. From the larger vessels hemorrhage sometimes takes place to an alarming and fatal degree, and may be caused by any sudden motion or exertion of the patient, or from any excitement increasing the rapidity and force of the circulation, thus pushing out the coagula which had plugged up the extremities. It may occur from sloughing or ulceration, or from a peculiar hemorrhagic diathesis induced by the exposure consequent upon a long campaign, improper diet, and an absence of vegetable food causing scurvy, the blood seems incapable of forming coagula sufficiently strong to close the extremities of the vessels.

Secondary Hemorrhage usually occurs between the eighth and twentieth day, and if the wound be in the immediate vicinity of a large artery, a tourniquet should be loosely applied, and the attendants instructed

how to use it, in case bleeding should commence. It is best to ligate both extremities of the vessel when possible; so that collateral circulation may not cause a renewal of the hemorrhage. In some situations it is impossible to ligate the bleeding vessels, as parts are often so swollen, discolored, and agglutinated that they cannot be found. We have as an instance, wounds of the interosseous artery of the arm, at times it is impossible to find it, being situated beneath the deep flexors of the forearm, so that the brachial has to be tied instead. The same trouble sometimes exists in wounds of the palmar arch, pressure upon the radial and ulnar will not always stop it, and the brachial has to be tied.

It is often impossible to distinguish which of the openings is the orifice of ingress, and which of egress, or whether the openings are produced by two separate balls, much can be ascertained by the position of the patient at the time of injury. Two balls sometimes enter the same aperture, diverge and pass out at different places, thus making three holes at once, giving the impression that the injury was received at different times and appearing as if one ball had passed entirely through.

and the other had lodged. Sometimes balls enter and split, either from striking against a sharp edge of bone or from some defect in the manufacture of the missile. This occurs more often in the common round musket ball, than in the minnie or conical ball.

The wound of entrance of the common bullet is usually circular, slightly depressed, and lined about the edges; The wound of exit is larger, more ragged and its edges are everted. Balls very often on entering meet with some slight resistance, such as bone or fascia by which they are turned aside, and passing around superficially on a rim of bone or a muscle, make exit somewhere opposite the orifice of entrance, thus giving the idea that the ball had passed entirely through the part, so also balls have been known to enter and being turned aside by some slight resistance, have passed completely around the body, and made exit at the aperture of entrance; They are often expelled through the same opening by the elasticity of the parts; sometimes a ball will carry a pouch of shirt or other garment before it, which being withdrawn brings the bullet with it, so that it does not always follow that because but one opening can be found, therefore the

ball has lodged. The course of the ball may generally be ascertained by the finger, bullet probe, forceps, scaps or ray bougie, or if it has traveled under the skin, by a bluish or dusky red line of inflammation which appears a day or two after, sometimes its course can be determined by an emphysematous crackling. The parts along the track are very much broken down, and the vitality destroyed.

In the Treatment of simple gun shot wounds a careful examination should be made with a probe as soon as the patient is seen, and if possible before inflammation and swelling has commenced, as it will be less painful to the patient, and more practicable to the surgeon. It is of great importance that all foreign substances, such as balls, spiculae of bone and cloth should be removed, this can generally be done by the various instruments made especially for the purpose. Sometimes a ball cannot be felt with the probe on account of some diversion from its course, but may often be felt by the fingers through the soft parts, and should be removed by incision when practicable.

On the reception of the injury a simple dressing of lint, cotton or linen cloth wetted with cold water is all that is necessary, this may be retained by

adhesive strips. Bandages at this stage should be avoided as they not only increase pain by their pressure, but become stiff, hard, and dirty with blood, thus rendering them very uncomfortable and decidedly unsightly. These cold applications may be used as long as agreeable to the patient, that is, during the stage of inflammation preceding suppuration. When cold becomes disagreeable it may be exchanged for warm applications, such as lint dipped in warm water, placed upon the wound and covered with oiled silk to prevent evaporation. Punctures are of great benefit during certain stages, they are useful to alluviate pain, stiffness, swelling and to encourage the suppurative process. They should not be kept on too long, but removed as soon as the desired effect is produced, and recourse had again to hot or cold water dressings. Dressings of cloth smeared with a little oil or simple cerate are often serviceable in tender wounds, relieving the feeling of stiffness and preventing the cloth from sticking to the wound, thus disturbing the parts when taken off.

Inflammation of muscular parts generally begins from twelve to twenty-four hours after the injury. The wound begins to be extremely sensitive swollen and

discolored; a reddish serous discharge now makes its appearance, the swelling increases from deposition into the surrounding areolar tissue, and extends above and below, giving a hard stiff feeling to the touch. It becomes exceedingly painful to the patient to have the wound touched, the inflammation still increases and about the third day the discharge grows thicker. About the fifth or sixth day the slough begins to separate, the discharge becomes more purulent and mixed with other fluids.

As the healthy action goes on pus is abundantly secreted. From the eighth to the tenth day the slough is almost entirely separated from the track of the ball, the discharge increases until all extraneous matter is removed. Granulations may now be seen through the pus, the wound gradually fills up by first contracting in the middle, and healing towards the surface. The granulations are often exuberant, but may be reduced by application of powdered alum, or caustic, at times they are pale and flabby and require stimulation, this may be easily had by the application of a solution of the sulphate of copper of the strength of five or ten grains of the sulphate to the ounce of water; this may be applied to the wound

by means of lint once or twice daily, until the desired effect is obtained. A light touch with caustic will generally increase the vitality of the part. Powdered cinchona is often serviceable when sprinkled upon the wound, dilute solutions of the chloride of zinc are often used with good effect. The fibrin and serum which has been thrown out during the process of inflammation is now gradually absorbed as the vitality of the part increases, the discharge of pus decreases, and finally the wound heals leaving a characteristic cicatrix.

During treatment the constitutional effects should be carefully watched. The patient should be placed in a large well ventilated apartment, every thing about the wound should be kept scrupulously neat, he should have good nourishing diet, where the inflammation is not severe. Stimulants and tonics are very useful adjuncts at certain times.

Of the various complications, such as fractures, erysipelas, mortification, amputation, hæmorrhage and the resultant constitutional effects it is not my intention to speak; nor will time allow a description of wounds in particular regions, this

thesis being rather a description of the phenomena of simple gun shot wounds.

Of the kind of wounds produced by the different projectiles now in use, much might be said each being to a certain extent characteristic of itself, and requiring slight modifications in the treatment, a description could scarcely be undertaken in a thesis with any claims to a prescribed length.

A Presentation
on

"Yellow Fever."

By

J. S. Meadows



Yellow ^{and} Fever

In medical literature this affection is now so well known, and so universally recognized by the name at the head of this page as to render unnecessary an enumeration of its synonyms.

In America it is met with habitually, in the West India Islands, the Atlantic cities, and Gulf shores, south of Charleston, the latter included. It has occasionally been seen as far north as New York, and Boston, and on the Mississippi, as far up as Memphis; which has been its northern limit in the Great Valley. It has also appeared in inland towns, and on plantations, near the river banks.

It is probable that 15 miles is as great a distance

is has been known to exist
between navigable water and the
low life of an epidemic.

It frequently originates and
prevails extensively on shipboard,
when the affected vessels have
lately been to ports where the
fever was raging. In some very
rare instances, it has occurred in
vessels, without the operation of
external agencies. As the case
cited in ("the Roche") relating to
the frigate General Brown which
left Newport for Havana, before
reaching port. Yellow fever appeared
on board, although it was not
prevailing in Havana at the
time. When recurring thus, in
a sporadic or cases, it begins
in the vicinity of the gangway
and main deck where
the whole of the ship is most

dependent, where, consequently, there is the greatest amount of moisture and heat.

Wherever it may occur it often exhibits a remarkable tendency to limitation, of course, for example on Bay Street, Savannah, in 1854 within the space of two blocks, the majority of the cases occurring in the first three weeks of the epidemic, was confined to that locality; and in 1852 all the cases were confined within an area of four squares, in the north eastern part of the city.

It is commonly met with during the latter part of the month of July and continues usually till the appearance of frost, as in Augusta, Ga. in 1854 after the first frost which oc-

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-curved in the early part of
November, no new cases were report-
ed.

Some authors assume that
a certain degree of heat ~~is~~
necessary for the developement
of the disease, also that warm
wet weather, is propitious to its
developement; but the testimony
of Dr Blair of Acmavara, Dr Fonda
of Savannah and others, conclusively
prove, that more or less rain,
or a greater or less degree of heat
has very little to do with the
production of Yellow Fever.

Neither age, sex, or condition
are sources of exemption from
this dread scourge; It may occur
and prove fatal at any time
of life; in the costly residence
of the wealthy, as well, as the
humble home of the laboring

man. That men die in larger numbers than women admits of self evident explanation.

Most writers on the subject, agree that in comparison with other races, the negro is least liable to be attacked with the disease. In this country, this exemption is in direct ratio, to the amount of African blood, the more the Caucasian the greater the liability. The full blooded African rarely contracts the disease, even though freshly imported from his native country, and placed in the midst of an epidemic.

Of all persons, soldiers, and sailors, suffer most from Yellow Fever. It is also very fatal among prostitutes, many cases have been cited in some of the Spanish

visitations, among those suffering from venereal or chronic diseases. Any occupation which tends to lower the standard of vitality, is a powerfully determining cause of the malady. Excessive indulgence in sexual intercourse should be especially regarded in the same light.

Residence in Yellow Fever countries for a long time is acknowledged to exert a certain prophylactic influence. Thus in healthy years what are called sporadic cases, are confined to strangers, and in years when the disease does not prevail so generally as to amount to an epidemic, the serious cases are confined to the unacclimated. In epidemics the natives and old residents are frequently ~~and~~ mildly attacked; but strangers

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~~are~~ generally seized, and have in
fact to bear, the violence and ma-
-lignity which belong to the fever.

A person may be said
to be thoroughly acclimated who
has previously had Yellow Fever.
Instances it is true, are recorded
in which two well marked at-
-tacks have been observed, but
the testimony of all extensive ob-
-servers, goes to prove the extreme
rarity of such exceptions to
the general rule. And in my
opinion, I doubt if the removal
to, and residence in countries
exempt from Yellow Fever, ~~the~~
has the effect of lessening the
propylactic influence of
acclimation.

Our knowledge of epidemic
influences, is altogether too limited
to arrest our attention here; nor

Can we foretell whether or not ^{the} yellow
fever will prevail in any given year
from our present acquaintance
with its nature and history.

But it is to be hoped that the
day may arrive when our ignorance
on these points will be enlight-
ened. Miasmatic fevers have
only to be understood, to be dis-
tinguished at once from the
disease under consideration; the
following principal differences it
will be well to bear in mind.

Yellow fever is almost strictly con-
fined to large cities, miasmatic
fevers are more prevalent in the
country. In miasmatic fever one
attack invites another, in yellow
fever one attack prevents another.
Miasmatic fever may be cured
by some of the preparations of
Sarsaparilla. Yellow fever cannot be

and still is. and finally
as cited by Dr Arnold. Yellow fever
has never been known to prevail
where Bilious ^{fever} was not endemic. Bil-
ious fever in its most malignant
form, is known to prevail where
Yellow fever has never been seen.

The much vexed points of
the contagiousness and communi-
-cability of yellow fever have been
abstractly, and learnedly discussed
and from our present knowledge
we should infer that there is
no danger in allowing contact
between persons ill of yellow
fever, and others in good health
the latter being in places where
the disease does not exist epidem-
-cally; although it is probable that
certain articles of merchandise, of
dress, or of bedding, may ^{be} ~~are~~
material which under peculiar

circumstances tenses to develop the fever. Infected ships are especially to be dreaded, and to abandon strict quarantine restraints, would be to put a price on human life, and barter it for trade.

The symptoms are various. The attack may come on suddenly, as is commonly the case; or it may have the usual prodromata, of febrile affections. Usually a chill is the forerunner of the violent pains in the eyeballs, over the forehead, or in the neck back and limbs. Neuralgic symptoms are scarcely unusual; it is observed that the first manifestations of the fever, usually occur in persons during sleep, having gone to bed in apparent good health; in malarious affections the majority of cases

of the liver, by a decided diminution ^{of temperature} below the healthy standard.

The capillary circulation is easily congested, and irregular in its distribution, there is great tenderness to a fall of temperature in parts of the body. Left uncovered a short time, this point is of importance in the treatment.

The febrile stage is succeeded by that of calm or apyrexia in which many or all serious symptoms may seem to subside - and this may be the commencement of convalescence; but it is too often the prelude to the third stage that of collapse and death.

In yellow fever the pulse is accelerated, but according to general ^{rules} not to that degree as in nearly all other diseases of a

febrile, or inflammatory nature.

It is said to vary in different epidemics in regard to strength, sometimes being full hard and bounding, at others small soft and easily compressible, and sometimes feeling as if the artery was filled with gas, so remarkable the morbidness is it to pressure. Great vascular soreness, also is often complained of.

The state of the tongue varies, it is usually covered with a white or yellowish white coat of epithelium until the latter stages; when it ^{may} be red and natural in size, at other times large, flabby, with white leavings marks of the teeth against which it has pressed; ecchymosis is rarely seen; in the last stage



the tongue may present the dry and brown appearance of typhus.

Anorexia generally characterizes the disease till convalescence commences. Rush mentions the fondness for tobacco some showed that came under his observation.

The thirst is usually not very great, yet ^{it} has been observed to vary in some epidemics. Nausea and vomiting will almost surely command our attention in a well marked case of yellow fever; gastric disturbance being one of the early symptoms; at first the matters vomited are the contents of the stomach, then mucus and bile; and according ^{to} Blair the ejecta thus far are of alkaline reaction.

Diuresis may continue from first to last, but usually when

the stomach has been well
emptied, it becomes quiet and
remains so, till from the second
to the fifth day, when without
apparent exciting cause it
becomes irritabile, and a mu-
scous acid fluid is eje-
cted; this has been called (white
vomits) and Blair states as his
belief that this is coincident
with the clearing off of the
tongue. Exceptionally bile is
ejected at this stage, and in
such a case may be regarded
as a good prognostic element.

When the emesis continues
any length of time of this
character, the ejecta is apt
to contain small snuff like
specks, forming a dirty sediment,
when this is seen black vomits
may be confidently looked for

The ejecta is not always black but may vary from the color of strong coffee, to a dark green, blood coagulables though undoubtedly present in black vomit, do not present a normal condition; the abundance of the ejecta varies greatly, yet the irritabile stomach in this stage rejects even the most bland fluids.

When an abnormal state of the bowels exists, costiveness has been the rule and diarrhoea the exception, Dr Blair says in his account of the Alpine depictions "ordinarily the stools first observed were those produced by calomel and castor oil early prescribed; these were bilious, and not worthy of particular description, occasionally in the early stages a greater or

less quantity of dark matter ~~in the~~
 appeared in the evacuations, this
 is the first tangible morbid product
 of the disease and highly diagnostic
 of the first stage, the appearances
 are similar to those produced by the
 use of preparations of Iron; or they
 may be blackish brown, or gray
 and fuliginous; after the exsa-
 tion of these melanotic stools,
 the dejections become of a dirty
 gray color, and on standing,
 deposit a sediment revealing with
 the aid of the microscope crys-
 tals of uric acid, and the
 triple phosphate, properly belong-
 ing to the urine; as death
 approaches the discharges become
 scanty brown black or streaked;
 and in all cases of fatal termina-
 tion, suppression ~~is a~~ of the urine
 is a usual accompaniment.

Before and touch the abdomen presents nothing abnormal except - ing the well known discoloration of the skin, that however is not always present, as a rule it appears in the latter half of the attack; but it may appear among the earlier phenomena, it is usually first observed in the conjunctiva and about the chin extending subsequently to the chest, where the color is usually deeper than elsewhere.

Epigastric pain, oppression and tenderness, are frequent symptoms, even when no complaint has been made - especially during the stage of prostration - very slight pressure on the epigastrium will cause pain distress and vomiting.

Flatulence often to an extreme degree has been observed to

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constitute a very distressing symp-
-tom, and where we have cases
of unfavorable epidemic consti-
-tution, hemorrhage is an important
phenomena, occurring as it may
from any mucous surface, or from
any wound or fracture of the
skin.

Since surgeon Collins of
the British Army, has given to
the medical world his investiga-
-tions of the urine in yellow
fever, much valuable information
has been acquired, with regard
to the kidneys and their excre-
-tions, in connection with this
disease; we now know that.

uraemia constitutes one of the
most important elements in
yellow fever. Blair states "that
after observing eighteen hundred
cases of yellow fever, a uraemic

appeared in the urine of every fatal case of normal duration.

In the early stages ^{of} much apprehension is felt by the patient, as to the nature and issue of the disease, as soon however as the first stage is passed, the utmost indifference to life is manifested.

The expression has been much dwelt upon by authors. And while acknowledging its peculiarities, I can think but little of its importance, as it may be observed to differ with the stage or special nature of the case; cramps are not usually met with, Spasmodic contraction of the diaphragm causing hicough is by no means rare, and belongs to the catalogue of bad symptoms.

New diseases progress so rapidly
 and are of such short duration
 cases having terminated fatally
 in forty-eight hours, and the
 great majority not being protrae-
 more than a week, in g. or-
 - able cases of a mild character,
 convalescence has been estat-
 - lished as early as the third
 day; in this particular
 epidemics vary greatly, some
 being characterized by a
 speedy return to health, while
 some put on the lingering type,
 the symptoms usually subside
 about the fourth day, leaving
 the patient stripped of all
 his strength, so that he is not
 able to sit up or take exercise,
 till about the eighth or tenth
 day, when recovery may be expected.
 Without sequelae of a serious nature

The period of incubation of yellow fever may be said to have for its usual time about a week although it may extend to twice that time.

As to the mortality of Yellow Fever, the usual law of grave epidemic is to be observed, the largest proportion of mortality occurring early in the visitation, and while some epidemics are noted for the comparative rarity of its fatal cases, others are rendered more justly terrible by its sweeping devastation, as in Mobile, during the summer of 1819, out of a population of a thousand souls one half of whom were acclimated four hundred and thirty died. (Lewis)

After what has already been said it would be needless for

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me to allude further to the prognosis
of yellow fever in general, nor
need the matter of differential
diagnosis claim our further care
but let us look at the pathological
anatomy of this dread disease.

The pathological anatomy
of yellow fever much has been
as yet known, while much
still remains for future research.

In the blood in the first
stage nothing abnormal ~~was~~
was found except an occasional
mixture ^{with} bile, the alkaline
reaction was always observed.
- only in the last stages and
Post mortems were changes observ-
- ed; and yet ⁱⁿ some fatal cases
there has been no abnormal
change except the bilious tinge,
and on the other hand some
observations have shown a marked

change to have taken place in the circulation during the last stages.

The brain shows no special pathological condition; the stomach sometimes natural has frequently its mucous membrane thickened and softened with patches of ecchymosis. Pleurition is rare. The liver in fatal cases as a rule is in a state of fatty degeneration; in the gall bladder cases are exceptional in which normal bile is found.

The heart is as a rule soft flabby and its structure easily broken up.

Treatment. The treatment of yellow fever has varied much according to the theory of the practitioner and the peculiar nature of epidemics, many prac

tioners encountering, mild types of the fever the normal tendency of which without gross mismanagement is to recovery, have systematically medicated their patients in some peculiar way, attributing to drugs what was simply a part of the natural history of the disease; and the course they pursued has been heralded to the world as the true and only one to be relied on, let me ask

Is there a possibility of carrying an abortive treatment? Can yellow fever be cut short? In the present condition of our knowledge, this question I think must be answered in the negative.

It is strictly a self-limited disease, to be managed, to be led, but not to be driven toward a favorable issue, at the

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present day no wise man would place reliance on calomel, on the lancet, on cinchona, or as specific remedies.

Among the first necessities in yellow fever, are to be reckoned cleanliness, good ventilation, quiet and good nursing, in bad cases where practicable there should be two nurses, one for the night the other for the day. If the bowels are torpid this should be effectually moved as soon as the patient comes under treatment, this may be accomplished by the administration of 10 or 15 grs of calomel followed by castor oil or a saline draught. No other purgation will be needed unless to meet particular indications, Dr Stone of New Orleans recommends if the patient is seen early, to

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follow the above with 15 or 20 grs
of Quinine, to be followed by 10
grains more in 12 hours. Beyond
this he does not go, his theory is
that the medicine thus given promotes
and prolongs diaphoresis, and
that whilst this, continues the
patient is safe. During the
febrile stage, cold affusion or
sponging, is very refreshing to
the patient. The violent neuralgic
pains may be relieved by
the application of sublimates
&c Thirst may be assuaged by
the prudent use of acidulated
drinks, barley water &c. Great
care should be taken to preserve
perfect rest of mind and body,
care should also be taken that
the patient do not uncover the
body or limbs, while any undue
weight of clothing that tends

to afford or overheat them should be removed, pellets of ice are agreeable to the patient and may be allowed without danger, if nourishment is demanded by the weak or sickly may be given.

Should collapse occur or threaten it is to be met with active stimulants brandy &c. Among the most distressing symptoms are nausea and vomiting this should be corrected if possible by giving perfect rest to the stomach and the administration of some of the many remedies that are known to be useful. Many suggestions have been made as to the proper treatment in black vomit, in this event let the stomach alone so far as the ingesta are concerned, the exceptional cases of recovery after this symptom appears, are due to non-medicinal influences.

H. J. ...



Dissertation.

by

Thomas Morton Hills.

Subject.

Hypodermic Treatment of
Disease.



The last fifty years have witnessed greater discoveries, and more improvements in the Science of Medicine; than many preceding centuries. The Profession, roused to greater activity, by the spur given to all branches of science, by the application of Steam to Machinery; and the discovery of electro-magnetism, and its subsequent application to the Telegraph, by Professor Morse, have made corresponding discoveries in Chemistry, Botany, and Materia Medica.

The amazing strides taken in Anatomy, have been followed by a corresponding improvement in Physiology and Surgery.

The great improvement in the mode of erection, and management of our places of confinement for criminals, in our hospitals and asylums, together with the improvement in sanitary conditions of homes, is scarcely when one finds that the average length of human life has been rapidly increased.

The discovery of Dr. Jenner, by which Small Pox, one of the most fearful and loathsome of all diseases, has been, or may be, repelled from the world; and that of Anaesthetics, by Dr. Horace Wells, mark the cause of the greatest revolution which the science of medicine ever underwent.

Fifty years have witnessed an entire reformation in the treatment of the Insane; and satisfactorily proved, that the Imbecile may, under proper

physical, moral, and mental training, become thoroughly reformed.

Among all the improvements that have been made, in the treatment of disease, and in the modes of administering remedies, none have been more striking, and perhaps none furnish so much as the Hypodermic Treatment, or the hypodermic mode of administering remedies.

This mode was first employed in the treatment of Haemorrhoids, and Rheumatism; of the success that has attended the treatment of these two diseases, by the local introduction of the perchlorate of iron and other styptics, I do not propose here to speak.

It was as late as 1843, that Dr. Alexander Wood of Edinburgh, first proposed and employed this mode

in the treatment of neuralgia.

He had read with great interest a work, by M. Vallerie, on the pathology of neuralgia, published in 1841.

Dr. Woods says, "that gentlemen pointed out the fact" "that the superficial nerves are the ones most commonly affected; and not only so, but that there are certain points in the course of each nerve, which are more liable to be affected by pain, than the rest of the nerve; and that these points are precisely those where the nerve approaches the surface of the body."

There are "four points" "where neuralgic pain is most apt to occur"; the first of these is the point where the nerve emerges from the bony canal through which it passes; the second, the point where the nerve traverses the muscle, to surmount the integument; the third, the point where

the terminal branches of a nerve expand in the integument; and the fourth, where nervous trunks become superficial during their course"; "this information" enables us to find the place, often very limited, where tenderness on pressure indicates the propriety of local applications.

"Another great fact" is, that while the pain is generally intermittent, the attacks may be paroxysmal, and may be awakened at any moment by firm pressure on the point indicated.

These facts, together with the results of the application of morphia to denuded blistered surfaces immediately in the neighbourhood of the seat of pain, led him to infer that the injection of a solution of morphia into the part affected would give relief; and experience has fully

verified the expectation.

"It was in the end of November 1848, that the first chance to test the practicability of this theory presented itself; the patient an old lady upwards of 80 years of age, who had been kept from sleep for four or five days by a most violent attack of cervico-brachial neuralgia; (he goes on to say) "this lady was an old patient of mine, and I knew she could not bear opium administered in any form by the mouth, thirty drops of a solution of morphine in sherry wine, were thrown into the tender part within the angle formed by the clavicle and acromion; In about five minutes the patient's eyes became injected, and looked just like the eyes of a drunken person, and she complained that her head was in a confused state: She soon afterwards fell asleep, and awoke after a refresh-

ing sleep of ten hours.

This treatment quite cured the old lady of the neuralgic pains, which never returned.

In Edinburgh the use of the hypodermic syringe became almost universal and has proved eminently successful.

I take the two following cases from an article by Dr. A. Novels on the treatment of neuralgia, by the hypodermic use of narcotics. "A lady, troubled with neuralgic pains, had been punctured upwards of one hundred times, always in different places; but no sooner had the pain been driven from one spot, than it took up its seat in another. At last I had expelled it from every part of the body except a corner of the head, and there I was puzzled how to deal with it. The fact was-

I could detect no painful point in the scalp. I would impress upon you that the instrument is not to be put into the place where the patient complains of pain, but into the part where you can awaken pain by pressure. Well I could find no pain by pressure upon any part. The lady's husband, a medical man, took her to the German baths, in hopes that they might furnish what was wanting to a cure.

She resided there several months, but without the slightest benefit; and at length her husband brought her back to me, saying that he was satisfied that unless I could cure her, nobody else could. I twice examined that part of her head; once more the second time, I succeeded in finding out the point where the needle should be inserted:

introduced the instrument; and from that day, she never had a touch of neuralgia again, though she has suffered from rheumatic gout."

Another lady, also the wife of a medical man, (I take these cases, because on that account I am better able to get at the symptoms) was suffering from very intense neuralgia in the forehead, which had lasted at irregular intervals, for ten days.

The pain was so severe that it rendered her completely useless. I at once inserted the needle; the pain became instantly relieved, and soon left entirely. Since that it has never returned!"

Dr. Charles Hunter, house Surgeon to St. George's Hospital, gives the following case. C. P., aged 18, was admitted to St. George's Hospital July 25th, under Mr Tatum, suffering

from excessive neuralgia in the right eye, which was also extensively diseased. As there were no hopes of saving the eye, and the pain was constant, the globe was removed for fear that the other eye should also suffer: unfortunately it did, and ran a most rapid course, - the lids became swollen, hard, thick, and ~~inflamed~~ ^{indurated}; the neuralgia in this eye became even worse than it had been in the other. All kinds of remedies were tried - aconite, morphine, hyoscyamus, opium, quinine, &c., all failed to give relief; chloroform was then used over frequently, but only gave her ease and sleep for a few minutes, or at most for an hour or so.

Sept. 9th. $\frac{3}{4}$ gr. of morphia, (the acetate,) was injected under chloroform into the eyelid, but produced no sleep, as sickness (which had commenced in the afternoon



after a dose of morphine by the stomach) continued during the night.

10th, No morphine given by the stomach, $1\frac{1}{2}$ grs., injected under chloriform into the eyelid; she went off to sleep for seven hours continuously, which she had not done for some months. She slept once or twice the next day without chloriform.

11th, Injection repeated 10 P.M.; a part escaped; she slept four hours; had acute paroxysms, between the periods of sleep.

12th. Sleep produced by the injection; and the severity of the paroxysms much diminished. In the next few days the morphine was injected, and gave ease and sleep in proportion to the amount injected; from this time no chloriform was employed while inserting the point of the syringe in the skin.

16th. Slept four hours last night. The pain

now is nothing to be compared to what it previously was, the swelling is going from the eye. In the evening nearly three grains of morphia were injected, sleep was immediately produced and continued eight hours.

The next day she was far quieter and easier, and appeared so comfortable at night that no morphine was injected. 18th. No morphine having been injected, no sleep was obtained last night, although a six hour dose (gr i) was continued to be administered by the stomach. 19th. $\frac{1}{3}$ gr., injected into the eyebrow, gave sleep for several hours at night, and a little in the day; at night two grains were given by the stomach; it gave no sleep, but after an hour or so it caused considerable sickness.

Oct. 4th. The morphine injections are still continued, and with considerable relief to the patient.

Dr. W. M. J. Burns gives the following case (I use his own words) The patient Mrs — Marriell, aged about 38 years, had been suffering for years with severe attacks from neuralgia. I was called to see her in the month of June 1858. I found her suffering from her old complaint in an exaggerated form, above the right eye, extending over the temporal region of the same side. I had exhausted all the ordinary remedies employed in such cases, when I observed in your Journal a notice of cases successfully treated by Dr. A. Wood of Edinburgh. I had at once recourse to his method of treatment by subcutaneous injections.

The injection was composed of equal parts of the tinctures of opium and hyoscyamus. The result was all that could have been wished for. The patient enjoyed a refreshing night's

* Medical Times and Gazette.

sleep after the operation. Till now she has been free from neuralgic pains.

From among a number of cases presented to the Conn. State Medical Society by Dr. B. H. Catlin, April, 10 1862. I glean the following, G. H., aged 44. A strong healthy Irish farmer. I was called to visit him Nov. 20th, 1860. He was suffering from a severe cold, attended with some fever and a troublesome cough. In the course of four or five days he was so far recovered as not to require medical attendance.

I was called to him again Dec. 3rd., I found he still had considerable cough and in addition to this, a severe attack of Sciatica. I continued the cough mixture which he had been taking with the addition of Pinck. Acid and Dover's Powders: with stramonium.

Dec. 6th., no better, gave with the

Trinct. Actea, Trinct. Veratrum Viride.

7th day, no improvement, little or no sleep, increased the opium.

8th. No relief or rest from the large doses of opium. Towards evening I injected a grain of the acetate of morphine, under the skin, over the seat of the disease; in ten minutes he was entirely free from pain, and I think he was in five, though it was so unexpected to him that he was unwilling to admit it. He slept well all night except that he awoke once and took some of his cough medicine. I saw him in the evening of the ninth, and though he remained free from pain, I was fearful he might not rest well. To secure this I injected another grain of morphine, after that he had no return of pain, and was soon well.

A case of peculiar interest, inasmuch as it reports at once, the most severe case of neuralgia on record, and also the largest amount of morphine ever put under the skin in the treatment of any one case, was reported by Dr. W. B. Townsend of New Haven, and published in the American Medical Times, Dec. 27th. 1862.

It is given thus, "In the month of Aug. 1861, a patient presented himself under the following circumstances:

The patient was 5 feet 10 inches in height, weighed 200 lbs., muscular system in a perfectly normal condition. Alimentary canal performing its functions naturally and regularly.

Notwithstanding this plethoric and robust condition of body, he suffered from an intense pain in the region of the left shoulder, extending down the arm, and dating back

about four weeks to its commencement.

Since early childhood he had been in the enjoyment of perfect health, and even at the first visit, although I made a careful examination of his case "capacit", nothing of an abnormal nature could be detected aside from a natural depression, resulting from the severe pain and disturbed rest.

Neuralgia suggested itself, and a subsequent train of symptoms has without doubt substantiated the diagnosis.

The excessive and almost continued pain, with its natural interference with sleep, had for the four weeks previous to his visit reduced his weight from 215 lbs. to 200 lbs. Having employed the sulphate of morphine in several cases of neuralgia hypodermically with complete success, I had no hesitation in administering it immediately.

The one eighth of a grain thrown under

the skin produced no perceptible effect; but when increased from one half to one grain the pain immediately subsided, and the arm which was powerless before the introduction, was able to perform its proper functions & fully unimpaired during a period of 24 hours.

Upon a recurrence of the pain a reintroduction was necessitated, followed by the entire disappearance of the neuralgia. The appetite, which was slightly impaired, returned, and the ~~system~~ generally recuperated, and thus the case continued for about four months, the injections not exceeding five grains of morphine in twenty four hours.

During this period of four months the sulphate of quinine in large doses, the salts of iron, arsenic, iodide, potass, strychnia, Stramonium, cannabis indica, ammoniac murialis, etc. etc., were

employer, but without any perceptible benefit. In fact, the treatment included illustrations from all the different classes of remedial agents found in the *Materia Medica*. Up to January, 1862, the neuralgia had been confined mostly to the left shoulder and arm, but at this time a marked change occurred.

The pain became more excessive, and extended down the side to the lower extremities, across the abdomen and chest, affecting not only the muscles of the chest, but those of the bronchial tubes, producing strongly marked paroxysms of asthma.

On account of the locality of the disease and its exaggeration, it was necessary to increase the dose to six grains daily, and at last after three convulsions, which lasted about half an hour each, during which time the functions of the sensorium were greatly

perverted, and almost entirely suspended, it was necessary to increase to eight grains in the twenty-four hours.

Previous to January, 1862, he has not been confined to the house even for a day, but during the attacks connected with the convulsions he was obliged to remain in bed for six weeks.

From the commencement of the disease and throughout its course, there has been no inflammatory action and no symptomatic fever.

In the neighbourhood of March 1st, 1862, the neuralgia left the limbs and located itself in the diaphragm and back, affecting the muscles of the bronchi but slightly.

The contractions of the diaphragm were so violent as to cause the abdomen to assume the dimensions of a female at the sixth month, which subsided

immediately after the injection of the morphine, leaving it soft, flat, and normal. The contractions have produced an umbilical hernia (although there was no predisposition,) which has attained the size of a hen's egg.

Up to the present July, 1862, we find him in the following condition, viz., general health fair, weight 160 lbs., appetite good, pain comparatively slight, and when free from it, seemingly nearly as well as ever. The injections are continued once or twice daily, averaging ten grains in the twenty-four hours.

Near the middle of August, 1862, a permanent enlargement of the abdomen was noticed, which gradually increased until November, 1862, when, after failing with the diuretics, hydrogogue cathartics, and other agents generally employed, I drew off six-

ten quarts of serum of the usual characteristics found in ascitis.

This occasioned great relief, and mitigated all the distressing symptoms to such an extent, that he was able to walk out with the aid of an assistant.

His condition Nov. 20 1862, much emaciation, weight 140 lbs, return of ascitis, occasioning pain from pressure, appetite good, sleeps poorly, pulse weak, constipation, confined to bed, pain of neuralgia recesive, but suppressed by the morphine, of which he takes daily from twenty five to thirty five grains seldom less.

December 2nd, 1862, — I re-performed the operation of paracentesis abdominalis, and drew off about eighteen quarts of serum of the ordinary character.

This I was prompted to do in order



to palliate the extreme dyspnoea, although he was in a very depressed condition.

The breathing was relieved, but the pain, which was located in the back, continued. He gradually sank, became comatose, and death terminated his horrible sufferings on the fourth instant.

The greatest amount of morphine given in twenty-four hours, when the suffering was the most acute, was over fifty grains (the morphine being of the first quality.)

When any attempt (unknown to the patient) was made to reduce the dose, it failed to control the pain, and I have been obliged to gradually increase the strength until (as before stated) over fifty grains have been administered in the course of a day, and without producing any marked symptoms of narcotism.

The amount of morphine taken during the treatment, extending over six or seven months, is almost fabulous; five thousand grains will not exaggerate it.

It never failed to relieve the pain and spasm of the muscles; the latter being often so severe of the recto-abdominal, as to assimilate the emprosthotonos of tetanus.

The muscular fibers between the linea transversae were so firmly contracted as to form distinct and hard tumors the size of a hen's egg. No effect was noticed as attributable to the morphine, with the exception of the immediate and total subsidence of the neuralgia. He had never taken any of the salts of morphia, or preparations of opium, before he was attacked by this malady, and his system gave no evidence of an habitual use of alcoholic

stimulants, The appetite continued good throughout the course of the disease, perhaps accountable to the fact that no morphine was taken into the stomach?

It was my privilege to see this case almost daily, for the first twelve months, during which time I kept a daily record of the amount of morphine injected: It is proper to say here that the Doctors estimate, of the amount of morphine used during the sixteen months, is small:

I know, from my record, and his statement of the amount used daily during the last four months, that the actual quantity used exceed his estimate by 2000 grains; making an average of about ten grains daily.

Much has been said, by way of objection to this mode of administering remedies, about the local irri-

tations caused by the injections.
Notwithstanding, but one abscess for-
mied during the entire treatment
of this case.

In neuralgia this plan of treat-
ment is almost universally benefi-
cial, ^{even} when it fails to cure it always
gives relief. It is not however confin-
ed to the treatment of neuralgic
affections. But is applicable in the
treatment of all conditions, and
diseases, where the indications of treat-
ment are to relieve pain, quiet
spasm, and to produce sleep.

The amount of sleep produced, and
the cessation of pain, always depend
upon the size of the dose, and the
amount of pain and excitement
present in such individual case.

The injections have been used
with flattering success, in a large
variety of diseases, and many cases

have been reported - but we have neither time or room for them here.

It is enough for our purpose to briefly speak of a few of the diseases that have been successfully treated by this plan.

In *Delirium Tremens*, the injections have been repeatedly used with entire success, giving immediate relief by inducing sleep, and allaying nervous excitement, when all other, and even the same remedies, given by the stomach in much larger doses have failed.

The different forms of *Tetanus* yield also to this powerful mode of treatment. Sleep follows the injection, although in the severer cases the tetanic spasms continue, though the patient may be unconscious of them.

The result is the same in *Chorea*, except that in this disease the spasmodic action ceases as soon as

the patient comes fully under the effect of the narcotic.

In obstinate cases of wakefulness with excitement it acts like a charon. While it affords an efficient means by which to quiet the most violent mania; repeated cases of permanent cure by narcotic injections, have been reported; Now the cases that will yield to (I mean be cured by) this treatment are those that are not confirmed or hereditary, but depend upon some present exciting cause. Sleep is the first thing to be sought, it always precedes recovery.

In Gout, and Rheumatism, they have been employed with good success, the Rheumatism frequently disappearing with the effect of the first injection.

The choice of cases.

Valuable as is the hypodermic

use of narcotics, it is not a specific, and should be used in all cases with discretion. When to employ the injection, and how not to, must depend upon circumstances, such as the nature of the disease, the urgency of the case, and the object in view.

There are some cases where hypodermic injections should be used, almost as a rule, without the loss of time in the employment of other means. I mean those cases of high cerebral excitement, as of delirium tremens, and of mania. In these cases to produce sleep, and allay excitement are the objects of treatment; and should be gained as soon as possible. The stomach is often irritable, or in such a state that it will not absorb medicine: and often, the patient cannot, or

cannot be induced to swallow.

In reality every thing points to the need of some surer, quicker, and more active mode of treatment than exhibition by the stomach.

It may be used also as a primary measure in cases of sudden and violent pain; for instance the passage of a renal calculus: the pain in these cases is at times almost insupportable; while the irritability of the stomach, and the consequent sickness, demand that the narcotic should be placed beneath the skin if used at all.

There are also cases where it should not always be used as a primary measure, such as Tic-Douloureux, Sciatica, and in some Rheumatic cases. Many of them depend upon slight derangement of some part of the digestive function,

and frequently upon over fatigue.
Purgatives, Alteratives, and Tonics, and
in the latter case Rest, should be
first tried, If they fail, then resort to
the trial of this plan. In properly
selected cases the cure will be very
rapid.

In another set of cases, the injections
should be used as a last
resort; I refer to that class of cases
where the causes of the disease are
obscure, and other modes of treatment
have failed. It is very often too that
in these very cases, injections seem
to answer the best, and are followed
by immediate recovery.

We should often use them, where
we know that they can act only as
palliatives; in cases where the cause
of the disease cannot be removed,
or it is not advisable to remove it;
as in neuralgia caused by pressure

on a nerve, and also in cases where recovery is not expected to take place, as in some cases of Tetanus and Hydrophobia.

As a means of Diagnosis. Hypodermic injections promise to be a material aid. They may be made to assist us in diagnosing between, neuralgia located in the intercostal spaces and pleuritis, neuralgia in the abdominal parietis over the liver, and hepatitis, especially where there is no enlargement of that organ; neuralgia in, females, in the lower part of the abdominal parietis, and uterine disease. Two or three injections usually curing the neuralgia, while in the other cases it would only relieve the pain for a short time. But it must be depended upon only in connection with attending symptoms.

When the Pathology of Tetanus and Chorea shall be better understood will it not distinguish between, spasms which depend on lesion of the-cerebrum, and those that arise from lesion of the spinal cord.?

Choice of Narcotics, should depend upon the Disease, the-peculiarities of the patient, and the-object of treatment. Any of the narcotics may be used, but among those whose opinions we are bound to respect, there is a great diversity of sentiment in regard to the-narcotic that may be used with the greatest benefit.

I should prefer some preparation of either the Opium, the Belladonna, or the Hyoscyamus.

It is however among the-diffusions preparations that the-greatest choice exists.

The tinctures may be used with

good effect, but they have the objection, that they cause a small hard lump, which disappears after a time. Their strength is apt to vary. While solutions are rapidly absorbed, produce no irritation, if properly made, and their strength is not apt to vary by evaporation.

A solution of the acetate of morphine has, perhaps, been as highly recommended, and as much used as any preparation: but for my own part I prefer a solution of either the sulphate of morphine, or the sulphate of codeine. I think that they are more powerful, act more ~~surely~~ evenly and surely, and produce less irritation than the acetates.

The size of the dose is varied, by the idiosyncrasies of the patient, the age, the sex, the amount of pain and nervous excitement present, and the effect

sought for. As a rule the first injection should be, for the female one half the ordinary stomachic dose, for the male two thirds of the same dose. Having ascertained the amount that the patient will bear you may increase the dose at pleasure.

Narcotics when received beneath the skin produce both a local and a general effect, the rapidity of its action depending upon its quick absorption into the circulation.

From the foregoing, and some little experience in the use of hypodermic injections, I draw the following, -
I "That certain medicines may be introduced into the cellular tissue beneath the skin with safety and with advantage."

II That medicines so introduced have a general as well as local effect.

III That medicines used hypodermi-

cally act more powerfully than when
reheated by the stomach.

IV That medicines when introduced
in this way act rapidly.

V That medicines so introduced act
with greater certainly than do stomach-
ic doses.

VI That much less constitutional
(nervous) irritation attends the sub-
cutaneous introduction of medicines
than when given by the stomach,
while they are on the whole far less
liable to disturb and derange the
functions of that organ.

VII Medicines are more purely
received into the system by this
method than when given by the
stomach, in which organ they may
become contaminated or decom-
posed.

VIII That when placed in the cellular
tissue beneath the skin the local

amount taken into the circulation is known, and the whole of it takes effect, which may or may not be the case when taken by the stomach.

IX That a given amount of medicine employed hypodermically has a greater, more rapid, and a more certain, effect, than when employed epidermically.

X That the medicines for which this mode of introduction is especially applicable are the various narcotics and sedatives.

XI That the diseases for which this plan of treatment is especially indicated are ^{for the} most part affections of the nervous system:— they are to be used—
1stly, Where the immediate and decided effect of a narcotic is required.
2ndly Where narcotics administered by the usual methods fail to do good and yet are indicated.

3rdly. Where the effect of a narcotic is required, and the patient refuses to swallow.

4thly. Where from irritability of the stomach or other causes (such as idiosyncrasy, &c.,) the patient cannot take the medicine by the stomach.

XII That the localization of the remedy is not necessary as at first supposed, in fact the non-localizing plan has the advantage that no abscesses result, while they occasionally follow the repeated local injections.

XIII That in using the hypodermic syringe the blood vessels and the trunks of nerves should never be wounded by the point of the instrument.

It was my original intention to have spoken also of the hypodermic use of other than narcotic remedies. I need not

tell you why I do not. I can only
say the half hath not been told.



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